



Metro Water Services

Stormwater Business Plan

FY2009-FY2013



February 1, 2008

Metro Water Services Stormwater Business Plan FY2009-FY2013

Prepared for:

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In Accordance with Ordinance BL2007-1440



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Executive Summary

In July 2007, the Mayor and Metro Council directed Metro Water Services (MWS) to conduct a study to determine the extent and level of stormwater services it would provide and the manner in which those services would be funded. Specifically, the Metro Council was interested in the feasibility of a stormwater user fee similar to those used by Charlotte, Louisville, Tulsa, Chattanooga, Memphis, and about 800 other municipalities in the United States. A stormwater user fee is an equitable and sustainable way to address Metro Nashville's stormwater infrastructure needs and pollution reduction regulations. It is seen as far superior to general fund tax-based funding or the extension of water fees to cover stormwater costs.

In response to Ordinance BL2007-1440, this business plan was prepared detailing the extent and level of stormwater services provided by MWS, costs for providing those services, a capital improvement plan, and a rate study, rate structure analysis, fee schedule and five-year plan for the implementation of a dedicated stormwater user fee. The following summarizes the major findings of the study:

- The stormwater program is currently operating with an annual budget of approximately \$12 million, the vast majority of which is used to keep the stormwater system operating. This is well below the projected need based on a business plan completed in 2001 but is all that is available due to a lack of general fund money and limitations of water and sewer fees.
- There is insufficient funding to design and construct projects meant to resolve the backlog of drainage complaints and service requests, which number in the thousands. It is estimated that approximately \$85 million is needed to resolve the current backlog of projects and service requests.
- Federal government regulations have become stricter and now mandate that Metro collect and treat stormwater more rigorously.
- Based on detailed analysis, \$25.8 million is needed annually to operate the stormwater program at a level that meets the public need, the water quality demands of the federal government, and begins to resolve thousands of unresolved service requests.
- To provide adequate funding with a dedicated stormwater user fee, a rate structure was developed to appropriately correlate use of this stormwater system with amount charged. Impervious surface (roof top, parking, driveway, etc.) on a property is the most significant determinant of that property's use of the stormwater system. The more you pave the more you pay. Based on financial analysis, the following rate structure was developed:
 - Small residential properties with impervious areas less than 2000 square feet would pay \$2.49 per month.
 - Medium residential properties with 2000 – 6000 square feet of impervious area would pay \$4.98 per month.



- Large residential properties with more than 6000 square feet of impervious area would pay \$7.47 per month.
 - Non-residential properties would pay \$4.98 per month per 3,200 square feet of impervious area, or part thereof.
- When compared to similar cities and programs across the United States 60% of large cities have stormwater fees higher than the recommended fee for Nashville and Davidson County.
- Properties that reduce the demand on the stormwater system or provide a service that reduces the overall cost of the MWS stormwater program will be offered a significant reduction in their stormwater fees – through a credit program.
- The fee would be billed monthly on the current MWS utility bill for those properties that have water accounts with or on a quarterly “stormwater only” bill for those properties that do not have existing MWS water accounts.

1.0 COMPELLING CASE FOR CHANGE – COUNTY-WIDE VISION

Controlling flooding and water pollution is vital to the safety and quality of life of the citizens of Davidson County. Therefore, stormwater management is one of the most important services Metro Government provides. Properly managing stormwater helps protect property values and promote the natural beauty and function of our streams; helping Nashville remain an economically attractive and environmentally sustainable community. Most importantly, stormwater services are mandatory and required by the Federal Government.

For example, the Metro Government must comply with an Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) stormwater discharge permit. Nashville is the 4th largest such permit holder in the nation. The Metro Government is responsible for maintaining more than 4,000 miles of stormwater system including streams, channels, pipes, and culverts.

The current stormwater program is administered by the Stormwater Division of Metro Water Services (MWS). The Stormwater Division employs 91 staff members who provide the following services to our stormwater customers:

- Response to citizen's requests for stormwater services,
- Drainage system design, maintenance, and operation;
- Review of development plans for stormwater design and drainage impacts;
- Compliance with state and federal regulations regarding floodplains, drainage, and water quality standards;
- Water quality designs;
- Water quality monitoring and sampling;
- Capital Improvement Project (CIP) planning and development;
- Mapping and database management; and
- Pollution prevention guidelines and inspections.



Figure 1-1. Examples of the damages – flooding, erosion, and pollution - caused by stormwater runoff.

Unfortunately, many of these services and their importance are not recognized until it rains and problems that have been growing and hiding in the dry weather are revealed. Funding for these services is not dependable or adequate and has decreased in the past few years, requiring MWS to perform only those services that are most critical. Resolution of customer service requests has slowed significantly.



1.1 Stormwater Successes

In response to chronic and unresolved stormwater concerns, the Metro Council passed a resolution in 1998 that established a Stormwater Task Force to assess the stormwater program and recommend improvements. In 2001, Metro Finance commissioned a study to update the Stormwater Task Force report. The study, entitled the *Stormwater Program and Organization Study (AMEC, 2002)*, illuminated the shortcomings of the stormwater program and made a number of recommendations including:

- Develop management systems and procedures to manage the stormwater program.
- Obtain a stable, adequate and equitable funding source for the stormwater program.
- Educate the public on meeting the goals of the stormwater program.
- Obtain necessary GIS data and technical support for the stormwater program.
- Maintain public drainage system through routine maintenance program.
- Develop and implement remedial maintenance program.
- Develop and implement capital construction and floodplain management program.
- Effectively plan, design and manage stormwater system through adequate engineering and planning functions.
- Effectively inspect and regulate activities that impact stormwater system.
- Meet water quality regulations and expectations.

The study can be viewed at ftp://ftp.nashville.gov/web/stormwater/stormwater_final_report.pdf. The study further recommended that funding for the stormwater program escalate to \$21.4 million by FY2007 with the expectation that there would be an update of the plan and that funding would continue to grow in subsequent years based on the most recent findings.

In April 2002, responsibility for the stormwater program was transferred from Public Works to Metro Water Services. The combination of all water services in the City – drinking water, wastewater, and stormwater – has helped link the natural water cycle in the eyes of the public and in the water services provided. **Since 2002, the stormwater management program has developed into a well organized and successful program.** Since 2002:

- The Development Review Section) has reviewed over **3,000 subdivision plats** and over **6,000 construction plans**, issued over **1200 grading permits** and improved plans review turnaround time.
- Water quality staff have completed over **21,000 construction inspections** and over **13,000 water quality inspections**; held over **1400 pre-construction meetings**; issued 725 Notice of Violations and almost 300 Stop Work Orders for non-compliance.
- With over 10,000 properties in the floodplain, MWS has **purchased 45 homes** in the floodplain and **reclaimed 38 acres** for natural flood area. As a result of the efforts of Master Planning, Nashville's participation in the FEMA Community Rating System has resulted in a 10% reduction in flood insurance premiums.
- Reflecting the fact that routine maintenance is the most demanded and visible function of the Stormwater Division, MWS has **completed almost 150,000 jobs** including clearing clogged inlets, removing debris and repairing ditches, cross drains and headwalls.

- Almost **650 projects** have been completed that relieved flooding by repairing or replacing aged, decayed or collapsing pipes and culverts.
- In 2006, Metro **passed the EPA audit** of compliance with the NPDES permit

All but one of the recommendations from the 2002 Stormwater Program and Organizational Study have been adopted – the development of a stable funding source.

1.2 Key Stormwater Challenges

Flooding and Drainage Project Backlog

The most recognizable stormwater service Metro provides is routine system cleaning and repair. This includes activities such as removing debris from ditches and pipes; repairing broken headwalls, and regrading silted ditches – basically ensuring that the stormwater system can function as designed. Without this work, homes, streets, yards, and sometimes entire neighborhoods would flood.

However, many of the stormwater problems in Nashville cannot be resolved with routine maintenance and require major construction or design. Examples of these problems include:

- Aged, damaged, or deteriorated stormwater pipes, culverts, or ditches;
- Areas where drainage infrastructure was never planned and does not exist; and
- Areas where the capacity of the system needs to be increased to account for upstream development.

Additionally, there are about 8,000 structures located in the floodplains of Davidson County. Many of these structures were built prior to the establishment of regulatory floodplains by FEMA. MWS maintains participation in the Federal Emergency Management Agency's (FEMA) community rating system which provides Metro homeowners with a 10% reduction in flood insurance premiums. Metro has also been able to participate in FEMA's home buyout program by matching 75% federal grant dollars with 25% from Metro. Under this program 45 homes have been removed from the floodplain and 38 acres of land have been reclaimed and restored for natural flooding area. **Under current funding, Metro is no longer able to meet the 25% match requirement and is missing the opportunity to receive FEMA grant money.**



Figure 1-2. Example of corrugated metal pipe deterioration.



Figure 1-3. Example of neighborhood flooding.

MWS receives hundreds of complaints or service requests each year from homeowners experiencing flooded homes, yards, or roadways. After the move of stormwater from Public Works to MWS, high levels of initial funding allowed resolution of problems that had languished for years.

The backlog of service requests declined until recently, when funding sources for stormwater dwindled. **Planning and design has been completed for more than 150 projects, but construction cannot begin until funding becomes available.** Furthermore service requests continue to come in, and the backlog is again growing.



Figure 1-4. Example of flooding of homes placed in the floodplain – Wimpole.

Increasing Regulations on Water Quality

The management of the quality of stormwater runoff is growing nationally in importance. Stormwater discharges from urbanized areas contribute sediment and other pollutants such as heavy metals and toxic organics to the waterways in the area and eventually to the Cumberland and Harpeth Rivers. The Metro Government of Nashville and Davidson County is given a permit by the Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) to discharge its stormwater into the waterways of the State. However, in order to discharge this stormwater, Metro must comply with the requirements of the National Pollution Discharge Elimination System (NPDES) permit which include:

Metro Government must comply with unfunded federal mandates for stormwater quality or be fined.

- Public education, awareness, and involvement;
- Minimization of water quality impacts from construction sites through erosion prevention and sediment control;
- Detection and elimination of illegal and improper discharges to the stormwater system;
- Inspections of industrial and high-risk runoff areas;
- Implementation, inspection, and enforcement of water quality standards for developments;
- Water quality monitoring of local waterways; and
- Annual reporting on compliance.

Non-compliance with NPDES permit has resulted in fines and mandated capital projects for many cities including Dallas, TX (\$1.2M fines, \$800K projects), Chattanooga, TN (\$100K fines, \$535K projects), and Columbia, SC (\$800K fines).



Figure 1-5. Examples of sediment-laden stormwater runoff as a result of poor construction management practices.

In recent years, the Federal Government's regulations have become stricter and have mandated that states collect and treat stormwater runoff more rigorously to keep pollutants out of the water supply and to allow streams to support their identified uses (i.e. fishing, recreation, etc.). **These regulatory demands require more services of the MWS Stormwater Division.** MWS must now monitor impaired streams for Total Maximum Daily Loads (TMDLs) of pollutants commonly found in stormwater. To meet this new regulation, MWS must conduct visual assessments of every stream that is not up to standard, must monitor water quality regularly, must identify sources of impairment, and must develop a plan to target the sources of the impairment to reduce the amount of pollutants reaching the stream.

There are 53 streams in Davidson County that are not meeting their intended uses – these are considered “impaired” – by State standards.

1.3 Funding Gap

Clearly, the stormwater program has enjoyed some early success. However, the lack of a dedicated funding source has had predictable results. The *Stormwater Program and Organizational Study* recommended funding in FY2003 at \$13.7 million, escalating to \$21.4 million in FY2007. In fact, actual funding from diverse sources such as water and sewer ratepayers, general fund property taxes, General Obligation (GO) bond proceeds, and Federal/Tennessee Emergency Management Agency (FEMA/TEMA) grants generally followed the recommended course until FY2007. Actual funding for FY2007 was \$15.5 million¹. Funding for FY2008, which was beyond the scope of the study, is \$12.8 million. Historical funding levels for the stormwater program since the move to MWS are presented in Figure 1.6.

¹ Funding in FY2007 was originally approved by Metro Council at approximately \$12 million. However, approximately \$3.5 million in unused bond proceeds was identified at Metro Public Works and transferred to Metro Water Services for use by the stormwater program.

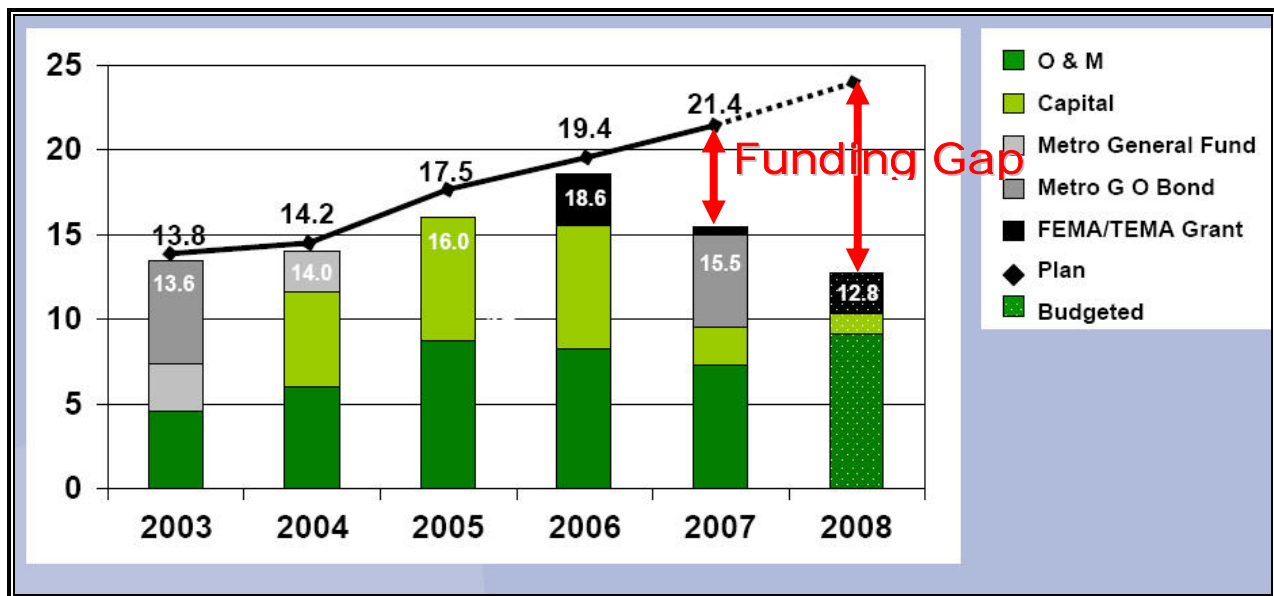


Figure 1-6. Stormwater Program Funding – Actual vs. Planned (in Millions).

Naturally, the demands of other government obligations like education and public safety make it difficult, even in a good year, to transfer property tax revenue from the general fund to stormwater. Stormwater has not seen a direct appropriation from the general fund since 2005. Indirect support from the general fund has come in the form of GO bond proceeds in years 2003 and 2007 only.

Since 2002, water and sewer ratepayer monies have been used, in part, to support and grow the stormwater program. The use of this money, however, is restricted by Metro Code and bond covenants. In addition, MWS water and sewer costs make future funding of stormwater at an adequate level to meet Metro's needs all but impossible. In the absence of any general fund money, either direct appropriations or GO bonds it is no longer possible to adequately deal with stormwater problems throughout Metro Nashville.

The lack of a steady and predictable funding source means that capital projects, if completed at all, must be paid for on a cash basis unless GO bond proceeds happen to be available. Cash funding places an additional burden on resources as large capital projects must be paid for immediately instead of over the life of the project. The lack of steady and predictable funding has also made it difficult to schedule and complete those capital projects that have been identified as necessary to maintain a viable stormwater drainage system.

The lack of a stable funding source was one of the few concerns expressed by the Environmental Protection Agency (EPA) during an audit of the stormwater program in 2006:

"Recommendation: TDEC and EPA strongly recommend that MWS devise a dedicated stormwater funding source that is more equitable and sustainable in the long term. If this negative trend continues, TDEC and EPA are concerned about the ability of MWS to provide adequate finances to implement all the MS4 permit conditions and the SWMP elements as specified in Part III.H of the permit."

Last, but not least, is the negative impact the lack of a dedicated funding source has had on customer service. In the last two years, the percentage of “closed” or resolved concerns has gone down from 71% to 38%, while the backlog of requests has continued to rise. The inability to schedule capital construction projects is frustrating for citizens that have requested stormwater services for years but cannot be given a definitive answer as to when their concerns will be resolved. Figure 1-7 charts the number of service requests received and closed, or resolved. Note the growing gap between the two.

After several years of progress, resolution of drainage concerns has once again slowed and the backlog is mounting.

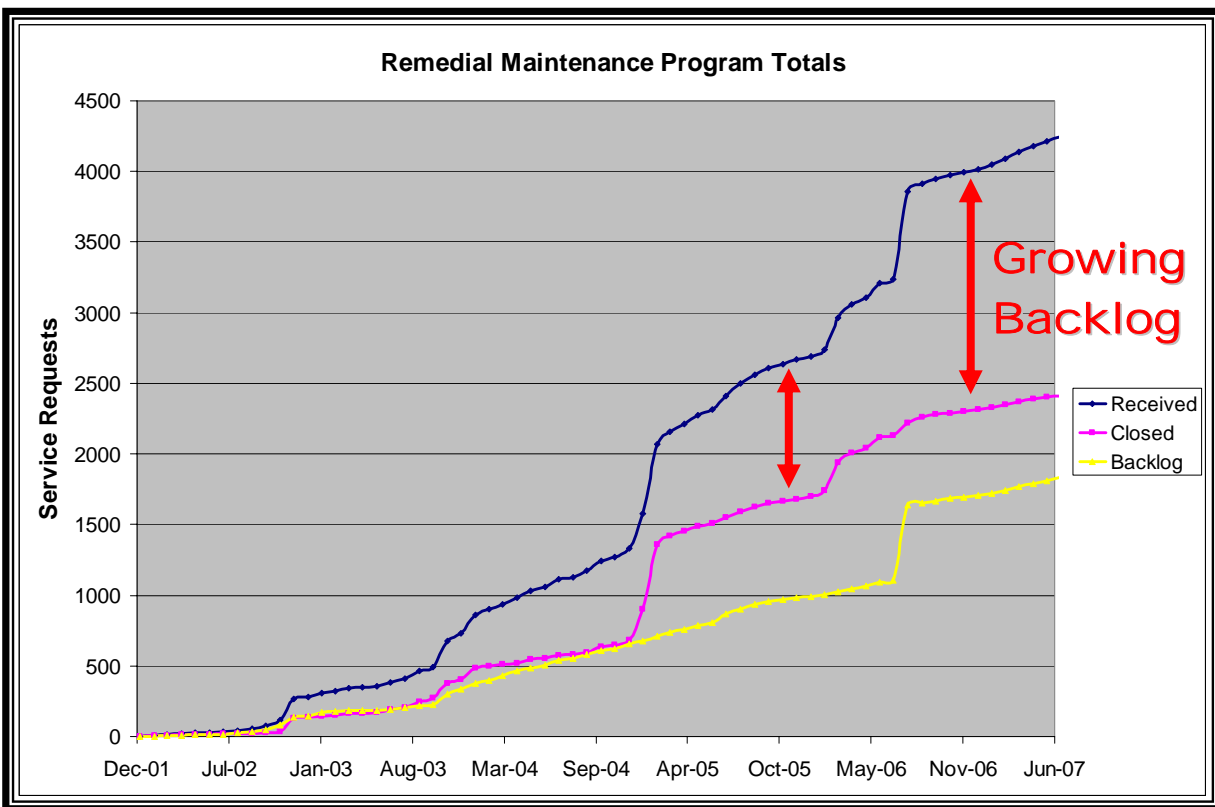


Figure 1-7. Stormwater Service Requests.

Failure to provide a dedicated funding source for the stormwater program will have detrimental results such as:

- Increased flooding and pollution
- Stormwater infrastructure deterioration
 - small problems, if not resolved, will compound to much larger problems, becoming more expensive to resolve and creating more damage downstream;
 - money has been invested in stormwater infrastructure – that investment should be protected



- Reduction in capacity to support development
- Decrease in environmental stewardship
- Loss of hard-won public confidence and support
- Loss of economic interest and appeal

It could also result in closer EPA scrutiny and even fines for noncompliance with permits.

All of this results in a diminishing quality of life for the citizens of Davidson County.

2.0 COST OF SERVICE ANALYSIS

The Cost of Service (COS) Analysis presents, in moderate detail, the direction recommended for the Stormwater Division of Metro Water Services (MWS). It does not address all of the minor details necessary to develop and maintain an effective stormwater program but only the major thrusts of the program, key support programs, key one-time costs, and primary annual expenditures.

2.1 Stormwater Program Organization and Staffing

Key stormwater services provided by MWS to its customers are:

- Municipal National Pollutant Discharge Elimination System (NPDES) stormwater permit compliance,
- Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) compliance,
- review of development plans for compliance with Metro Nashville stormwater regulations, and
- maintenance, repair, and new construction of stormwater infrastructure.

The Stormwater Division is organized along functional lines in order to provide these key services in an efficient and timely manner (Figure 2-1).

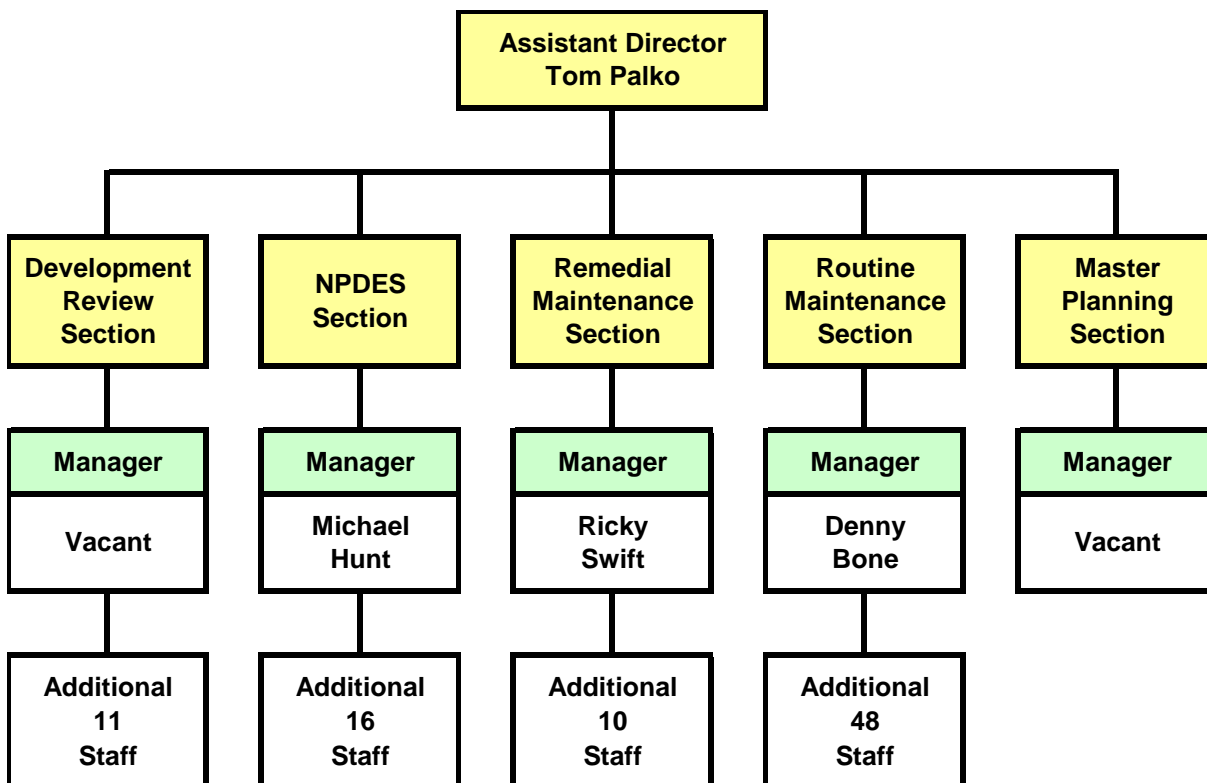


Figure 2-1. Stormwater Division Abbreviated Organizational Chart.



2.1.1 Development Review Section

The Development Review Section is responsible for reviewing development plans for compliance with stormwater management regulations. This Section also provides staff and administration for the Stormwater Management Committee, which hears requests for variances from stormwater management regulations.

2.1.2 NPDES Section

The NPDES Section is responsible for providing construction site management, protecting the viability of streams, and ensuring water quality permit compliance. This Section collects data and maintains several critical databases including a database for drainage features that comprises the Municipal Separate Storm Sewer System (MS4) and a database that tracks location and maintenance of stormwater detention and water quality best management practices (BMPs).

2.1.3 Remedial Maintenance Section

The Remedial Maintenance Section runs the remedial maintenance program that seeks to resolve stormwater service requests through the construction of routine maintenance, remedial maintenance, and capital improvement projects. These projects involve construction to restore function of the existing system and to build new systems to resolve flooding concerns. These projects are constructed by private contractors through either annual contracts with Metropolitan Government or through a typical bid and award process.

2.1.4 Routine Maintenance Section

The Routine Maintenance Section includes traditional staff and equipment to perform routine maintenance activities on minor drainage systems. Projects performed by the MWS maintenance crews are generally small and are situated within or near the public road right-of-way. These projects restore function of the existing system through cleaning and stabilizing without major reconstruction.

Service requests for routine maintenance are addressed upon receipt by MWS maintenance crews and are generally addressed in the order they are received.

2.1.5 Master Planning Section

The Master Planning Section is responsible for general floodplain management and implementation of the Floodplain Reclamation Program (Home Buyout Program). General floodplain management duties include administration of the FEMA National Flood Insurance Program (NFIP), the FEMA Community Rating System (CRS), and watershed studies commissioned by MWS.



MWS estimates there are approximately 8000 structures located in identified floodplains. Current policy focuses on the removal of select structures from the floodplain rather than investing in major capital projects to protect poorly located structures. The program has been very successful with 45 homes removed from the floodplain since 2002. Homes are purchased through a Federal cost-sharing program where 25% of the costs are provided by the Metropolitan Government and 75% of the costs are provided by the FEMA.

2.1.6 Stormwater Administration Section

Stormwater Administration is a business unit for accounting purposes and includes one staff member, the MWS Assistant Director for stormwater services. This Administration plans and administers the stormwater program, develops management systems, procedures, programs and support functions, and meets citizen and political expectations to:

- protect life and health
- minimize property loss
- enhance floodplain use
- ensure a functional drainage system
- protect and enhance the environment
- encourage aesthetics and recreation
- encourage and guide "sustainable" development

2.2 **Program Priorities**

The stormwater program priorities are closely aligned with the key stormwater services provided by MWS. These priorities, in no particular order, are discussed below.

2.2.1 Priority 1 - NPDES Permit Compliance

It is imperative that Metro Nashville maintain compliance with the NPDES municipal stormwater permit issued by EPA. Permit compliance is necessary to avoid non-compliance penalties and fines. NPDES permit compliance efforts also overlap with other stormwater duties such as inspection of construction sites for compliance with Metro Nashville stormwater regulations for erosion prevention and sediment control.

A general nationwide increase in citizen expectations for clean air and clean water has also been seen in Nashville where NPDES permit compliance is a high priority function due to an ever increasing customer demand for clean, healthy streams.

2.2.2 Priority 2 – Stormwater Infrastructure Maintenance and Repair

Maintenance of the stormwater infrastructure (general maintenance and cleaning, repair, and new construction) is a constant undertaking that requires more than half of the Stormwater Division workforce. Maintenance of the stormwater infrastructure is a high priority to MWS due to customer demand (flooding of property and homes) and public safety (flooding of streets and roads).



When the drainage system doesn't function as designed or intended, customers routinely call MWS and file a service request concerning flooding of yards, streets, and homes. Generally, customer demands for system maintenance outpace available funding resulting in a growing backlog of needs as discussed in Sections 1.0 and 3.0.

To meet customer demands, MWS must perform more maintenance, but MWS must also shorten the turnaround time between when a service request is filed and when the drainage concern is corrected.

The pure number of customer service requests and the size and number of the projects needed to correct the concerns require a level of funding that is not currently available. In order to improve service to customers and reverse the trend of a growing backlog of service requests and resultant projects, it is proposed that the budgets for routine and remedial maintenance be greatly expanded.

The FY2008 budget for the Stormwater Division is approximately \$12.8 million which is approximately 60% of the budget recommended in the *Stormwater Program and Organizational Study* (AMEC, 2002) commissioned by Metro Finance. With this limited budget, approximately \$1 million is allocated in FY2008 to correct local flooding problems. In stark contrast, the *Stormwater Program and Organizational Study* recommended that by FY2008 approximately \$15 million should be allocated annually to correct local flooding problems.

2.2.3 Priority 3 – Guide New Development

MWS seeks to guide development in a manner that protects natural resources and also verifies that appropriate infrastructure is designed and installed to limit future flooding concerns both on-site and downstream of development.

MWS dedicates staff of the Development Review Section to review proposed development plans for compliance with stormwater management regulations. This service to the community is a high priority for MWS because:

- The NPDES permit requires MWS to perform plans review and approval and to perform inspections during construction. The NPDES permit is also the driving force behind some of the development requirements such as the requirement for erosion control measures and the requirement to install best management practices (BMPs) for post-construction water quality purposes.
- The practice of reviewing development plans provides an opportunity for oversight on the design and construction of development to verify that basic industry standards are followed in order to protect customers. If drainage systems are incorrectly sized or poorly constructed, eventually customers will call MWS with service requests to repair or construct drainage systems after the contractor has left the project site. MWS customers would eventually pay to correct stormwater problems due to lack of development oversight. Proper oversight of development through a plans review and approval process allows for the prevention of some future stormwater problems through proper design and construction on the front end.



While customers have a basic expectation that new drainage systems will be designed and constructed appropriately, the development community has an expectation that the plans review and approval process will be efficient and quick. To meet the demands of both customers and the development community, MWS needs additional staff to allow reviews to be performed quickly, yet thoroughly.

2.2.4 Priority 4 – Manage Regulatory Floodplains

The underlying premise of floodplain management is to define where floodplains exist on local streams and to set standards for development in floodplains to minimize the risk of flooding for homes/businesses and transportation systems.

Metro Nashville participates in the FEMA National Flood Insurance Program (NFIP). As a participant in the NFIP, customers are eligible to purchase federally subsidized flood insurance. Without participation in the NFIP, most customers simply could not acquire flood insurance.

Further, MWS maintains active status in the FEMA Community Rating System (CRS). The CRS is much like the fire protection rating where the community is assigned a rating from 1 (best) to 10 (worst). Flood insurance premiums for customers are reduced by 5% for each drop in CRS rating. MWS currently maintains a CRS rating of 8 which allows customers to reduce flood insurance premiums by 10%.

There are many activities undertaken by MWS to protect customers from flooding associated with streams and rivers and to provide an opportunity for customers to purchase flood insurance by maintaining participation in various FEMA programs.

Beyond participation in FEMA programs, MWS places a high priority on removing the threat of flooding for residents in floodplains along local streams. The approach taken is to remove the home from the floodplain through a federal cost-share program and restore the floodplain to its natural state.

2.3 *Proposed Staffing Plan*

The Stormwater Division has 91 budgeted positions in the FY2008 budget. These staff positions are allocated to the six (6) operating Sections of the Stormwater Division as presented in Table 2-1.

In order to provide a level of service required by Federal permits and programs and to meet the expectations and demands of our customers, MWS proposes staff additions over the next 5-years as further illustrated in Table 2-1 and discussed below.



Table 2-1. Summary of Proposed Staffing.

Stormwater Division Section	FY2008 Budget	Proposed Staffing by Fiscal Year				
		FY2009	FY2010	FY2011	FY2012	FY2013
Development Review	12	14	18	18	18	18
NPDES	17	19	21	21	21	21
Remedial Maintenance	11	13	14	15	15	15
Routine Maintenance	49	49	57	57	57	57
Master Planning	1	2	3	3	3	3
Administration	1	1	1	1	1	1
Total Staff	91	98	114	115	115	115

2.3.1 Development Review Section

Staffing increases are planned as follows to support Program Priority 1 (NPDES Permit Compliance) and Program Priority 3 (Guide New Development):

FY2009

- A Technician who will consolidate the oversight and management of development related bonds.
- A Technician who will be dedicated to providing customer service pertaining to the stormwater user fee. The staff member will address user fee questions, appeals, and applications for fee credits.

FY2010

- An Engineer to add capacity to the plans review staff in order to provide a greater level of service to the development community and shorten the average turnaround time for reviews.
- A Technician proficient in Geographic Information Systems (GIS) to support the plans review staff and the Stormwater Management Committee.
- A Technician to provide general office support such as general administrative duties, filing, scanning, etc. to free the Engineering staff so they may focus on plans review and improve efficiencies.
- An Administrative staff member to provide general administrative support and to serve as a greeter or receptionist for the Development Review Section at the Metro Office Building.

2.3.2 NPDES Section

Staffing increases are planned as follows to support Program Priority 1 (NPDES Permit Compliance) and Program Priority 3 (Guide New Development):

FY2009

- An Environmental Compliance Officer to perform inspections of stormwater quality BMPs as required by the NPDES permit.



- An Environmental Compliance Officer to manage the members of the NPDES Permit Team, which has primary responsibility for compliance with the NPDES permit.

FY2010

- A Technician to consolidate miscellaneous inspection and enforcement duties in order to improve the efficiencies of other staff members. The Technician will investigate sites where construction has commenced without appropriate permits, investigate sites where a grading permit was issued but has since expired without proper closure, and coordinate enforcement activities and represent MWS in Environmental Court during enforcement actions.
- A Public Education Coordinator to administer public information and involvement requirements of the NPDES permit.

2.3.3 Remedial Maintenance Section

The program has historically relied on engineering design firms to develop plans for those projects that require detailed engineering design. Design support from the private sector is proposed to continue with MWS staff primarily managing the design and construction efforts.

Even with the use of design firms, some MWS staff increases are necessary for an expanded remedial maintenance program in support of Program Priority 2 (Stormwater Infrastructure Maintenance and Repair):

FY2009

- A staff member to investigate stormwater service requests, meet with customers, and document drainage concerns.
- A staff member to assist with the financial administration of construction projects such as reviewing and approving contractor pay requests.

FY2010

- A staff member to perform general administrative duties.

FY2011

- A staff member to begin the long-term planning process for large-scale, neighborhood-wide drainage improvement projects.

2.3.4 Routine Maintenance Section

In order to provide customers with an appropriate level of service, respond quickly to service requests, and begin the move from a reactive maintenance program to a proactive one, an additional maintenance crew is proposed. The proposed crew would be added in FY2010 and would include 8 staff members to support Program Priority 2 (Stormwater Infrastructure Maintenance and Repair).



2.3.5 Master Planning Section

Staffing increases are planned as follows to support Program Priority 1 (NPDES Permit Compliance) and Program Priority 3 (Guide New Development):

FY2009

- A Planner to administer the Floodplain Reclamation Program and coordinate with home buyouts with FEMA and the State of Tennessee.

FY2010

- A Technician to consolidate floodplain management duties currently being performed by Development Review staff and assist with general floodplain management duties including:
 - responding to homeowner requests for floodplain information,
 - coordinate with the real estate community regarding floodplain information,
 - review and approval of developer requests to modify floodplain and floodway limits,
 - review flood studies and watershed master plans,
 - coordinate with Metro Planning on presentation of floodplain management data on www.nashville.gov,
 - oversee the development and maintenance of hydrologic and hydraulic models for local streams, and
 - coordinate with the Office of Emergency Management (OEM) regarding update and compliance with the Multi-Hazard Mitigation Plan.

2.3.6 Administration Section

No increases in staffing are planned for the Administration Section.

2.4 *Proposed Funding Plan*

To provide an appropriate level of service to customers, to address the problems, needs, and issues presented in Section 1.0, and to support the four program priorities, the stormwater program should be funded at a significantly increased level. Table 2-2 presents summary information for a recommended 5-year financial model to appropriately fund the stormwater program.



Table 2-2. Cost of Service Summary.

		Budget Projections by Fiscal Year				
		FY2009	FY2010	FY2011	FY2012	FY2013
1						
2						
3						
4	Salary	\$4,565,838	\$5,418,622	\$5,715,761	\$5,889,747	\$6,126,606
5	Fringe Benefits	\$1,761,724	\$2,105,046	\$2,207,568	\$2,274,391	\$2,356,660
6	Other	\$6,435,402	\$6,580,630	\$5,946,877	\$5,959,981	\$6,113,832
7	Subtotal Operations	\$12,762,964	\$14,104,299	\$13,870,207	\$14,124,119	\$14,597,098
8	Construction	\$9,000,000	\$9,150,000	\$9,600,000	\$10,100,000	\$10,400,000
9	Facility Improvements	\$550,000	\$0	\$0	\$0	\$0
10	Equipment	\$1,075,000	\$425,000	\$425,000	\$425,000	\$425,000
11	Floodplain Reclamation	\$1,000,000	\$1,500,000	\$2,000,000	\$2,000,000	\$2,000,000
12	Consulting Svcs	\$1,200,000	\$1,165,000	\$1,210,000	\$1,260,000	\$1,290,000
13	Subtotal Capital	\$12,825,000	\$12,240,000	\$13,235,000	\$13,785,000	\$14,115,000
14	Total Budget Required	\$25,587,964	\$26,344,299	\$27,105,207	\$27,909,119	\$28,712,098

The table is arranged to summarize major cost items and is not intended to present a detailed cost breakdown. Specific notes to Table 2-2 follow:

Line Number	Notes
4	Existing staff salaries (FY2008) were used for current employees and open staff positions. Salaries were adjusted to extrapolate to FY2009 and each year thereafter through consideration of step increases and assuming a 3% annual increase in the Metro Pay Table. Salaries for staff additions were estimated based on comparable salaries for similar positions.
5	Fringe benefits were divided into several categories following normal department budgeting protocols. Some benefits are calculated as a percent of salary and some as a fixed cost per employee. Fringe rates for FY2008 were used as a basis and adjusted each year based on an inflation rate of 3%.
6	The Other category captures non-salary operations expenses such as internal service fees, LOCAP reimbursement, utilities, personnel equipment and uniforms, office supplies, licenses, insurance, travel, construction materials, and various engineering and consultant services in support of operations activities. With the exclusion of engineering and consultant services, most expenses were adjusted annually based on an inflation rate of 3%. Line 6 also contains \$1 million annually for routine maintenance projects assigned to annual contractors for completion.
7	Total of operations expenses listed in lines 4, 5, and 6.



Line Number	Notes
8	Capital expenses for construction are designated for Remedial Maintenance Section projects that are awarded based on competitive bids. These projects are the result of stormwater service requests and seek to correct problems on minor drainage systems (neighborhood drainage problems). The projects may be classified as capital improvement, remedial maintenance, or routine maintenance. The annual budget is variable and is set to balance the total program cost based on an overall program growth rate of 3% per annum.
9	Capital expenses for facility improvements are designated for the MWS offices at County Hospital Road. These expenses are a one-time expense identified for FY2009.
10	<p>Capital expenses for equipment are allocated as follows for new and replacement vehicles:</p> <ul style="list-style-type: none"> • \$650K is allocated in FY2009 for new equipment for the additional maintenance crew planned for the Routine Maintenance Section. • \$250K is allocated annually for new equipment and replacement equipment for the Routine Maintenance Section. • \$100K is allocated annually for new equipment and replacement equipment for the NPDES Section. • \$75K is allocated annually for new equipment and replacement equipment for the Remedial Maintenance Section.
11	Capital expenses for floodplain reclamation support the home buyout program administered by the Master Planning Section. The existing budget of \$1 million annually is carried forward into FY2009. The budget escalates to \$2 million in FY2011 then levels off. These funds represent the 25% local share required by the cost-sharing provisions of the FEMA grant programs.
12	<p>Capital expenses for consulting services are allocated for each Stormwater Division Section. Most expenses are allocated for specific work products as follows:</p> <p>Remedial Maintenance Section</p> <ul style="list-style-type: none"> • \$1.1 to \$1.3 million is allocated annually for surveying, engineering design, and related services to support the construction program listed in line number 8. <p>Administration Section</p> <ul style="list-style-type: none"> • \$50,000 is allocated in FY2009 for consulting related to a planned upgrade to the work order management system.



Line Number	Notes
13	Total of capital expenses listed in lines 8 through 12.
14	Total budget required for the stormwater program which is a summation of the operations expenses in line 7 and the capital expenses in line 13.

2.4.1 Peer Comparison

The FY2008 stormwater services budget is approximately \$12.8 million. The proposed funding plan for FY2009 presents a budget of \$25.6 million. The existing and proposed budgets are shown in general and subjective context to other stormwater programs nationwide in terms of dollars spent per developed acre (Figure 2-2).

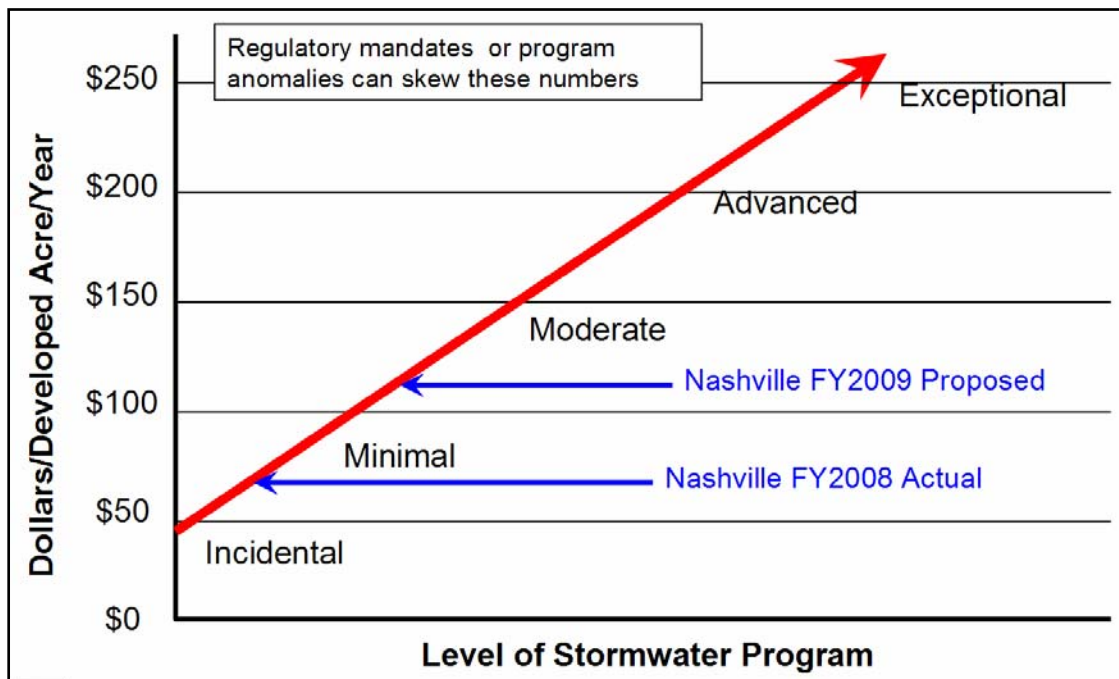


Figure 2-2. Comparison to Other Stormwater Programs.

While Nashville has a well-rounded stormwater program, current funding levels place the Nashville stormwater program in the “Minimal” category. If funded as proposed, the Nashville stormwater program would move closer to a “Moderate” stormwater program.



3.0 CAPITAL IMPROVEMENT PLAN

The capital improvement plan provides a description of projects, identified and unidentified, to resolve flooding concerns reported by customers or identified by engineering studies. These projects vary greatly in size and complexity. Some projects will resolve flooding along minor drainage systems (storm sewers, ditches, etc.) and others along the major drainage systems (streams, rivers, and their tributaries).

Projects are categorized and discussed herein in the following groups:

- Remedial Maintenance Projects (Section 3.1)
 - Identified Projects (Section 3.1.1)
 - Unidentified Projects (Section 3.1.2)
 - Projected Future Needs (Section 3.1.3)
- Floodplain Reclamation Projects (Section 3.2)
- Floodplain Management Projects (Section 3.3)
- Neighborhood Drainage System Planning (Section 3.4)

3.1 Remedial Maintenance Projects

Remedial Maintenance (ReM) projects generally are initiated by receipt of a stormwater Service Request (SR) which documents a stormwater drainage concern. Service Requests are investigated by Metro Water Services (MWS) staff to document the concern, to verify that MWS is responsible for and can address the concern, and to determine the best course of action. After investigation, SRs generally follow one of three tracks:

Track 1

Service Requests are closed because the issue either should not be resolved by Metro Government or should not be resolved by Metro Water Services specifically. For MWS to claim responsibility for a drainage concern, the concern must be based on stormwater runoff from public property, i.e. the concern must involve "public water". Examples of Service Requests that may be closed without direct intervention by MWS include:

- Service Requests that do not involve the functionality of the drainage system such as:
 - a request to replace a ditch with a pipe,
 - a request to concrete a natural ditch,
 - a request to replace a concrete ditch simply because the existing concrete is cracked, and
- Service Requests that are not within the jurisdiction of MWS to resolve such as:
 - drainage from one private property running onto another private property,
 - a drainage concern located outside the MWS stormwater service area,
 - a drainage concern that is within the right-of-way for a state highway, and
 - a drainage concern resulting from a wet crawl space due to springs or groundwater.



Track 2

Service Requests that can be resolved by general maintenance efforts are forwarded to the Routine Maintenance Section of MWS where the concern is addressed by MWS maintenance crews through activities such as ditch cleanout, debris removal, inlet cleaning, and culvert replacement.

Track 3

Service Requests are tracked and addressed by the Remedial Maintenance Section of MWS. These SRs usually result in the development of a project to be performed by a private contractor. The projects may be classified as routine maintenance, remedial maintenance, or capital improvement depending on the scope of work for the project. For purposes of this discussion, all three classifications of projects will be referred to as remedial maintenance (ReM) projects.

Routine maintenance projects are normally performed by an annual contractor and are simple enough that an engineering design is not necessary. Remedial maintenance and capital improvement projects are normally complex enough that a traditional engineering design is required.

ReM projects presented in the Capital Improvement Plan result from service requests that follow Track 3 above. These projects fall into three distinct categories and are discussed below by category:

1. **Identified Projects.** Projects that have already been identified to resolve a stormwater issue. Engineering design plans, either preliminary or final, already exist for these projects but funds are not available for construction.
2. **Unidentified Projects.** MWS is tracking many service requests for which an engineering design has yet to be performed. Based on historical data, MWS is able to predict future projects resulting from these existing service requests.
3. **Projected Future Needs.** Service requests will continue to be received by MWS. While the number and rate of service request calls are unknown, estimates can be made based on historical trends and, as a result, future project needs can be predicted.

3.1.1 Identified Projects

As of December 2007, MWS reported a backlog of 168 projects that were not yet funded. These projects are supported by a preliminary engineering design and an associated preliminary construction cost estimate. Many of these projects were originally designed (preliminary design) in 2002 and 2003. Considering the time lag between preliminary and final designs, historical bid tabs, and the possible expansion of project scopes to address more recently received service requests in the same area, many of the original cost estimates have been doubled for planning purposes.



Projects are ranked based on the severity of the drainage concern. Priority A projects are the most severe and priority C projects are the least severe. A few projects are not ranked because they do not resolve a specific service request. For example, MWS is currently tracking five (5) projects that are unranked. These projects are either debris removal projects along a local stream reach or a ditch cleanout project along a significant length of a major roadway.

Table 3-1 summarizes the backlog of 168 existing projects by priority ranking. The existing projects have an estimated construction fee of \$38.8 million.

Table 3-1. Summary of Identified Project Backlog.

Project Priority	Number of Projects	Estimated Construction Cost	Average Cost Per Project
A	49	\$19.9M	\$406K
B	85	\$11.7M	\$138K
C	29	\$3.3M	\$115K
Unranked	5	\$3.8M	\$769K
Totals	168	\$38.8M	\$231K

3.1.2 Unidentified Projects

As of December 2007, the Remedial Maintenance Section was tracking 1,085 existing service requests that have been assigned a priority ranking and are in queue for resolution. Based on historical data, these service requests should result in approximately 868 projects. Of the 868 projects, 388 are estimated to be routine maintenance projects funded under the operations budget. The remaining 480 projects (routine maintenance, remedial maintenance, and capital improvement projects) would be funded by capital funds.

Using historical data, average project costs were estimated and projections were made for required funding for construction. The estimated 868 projects should necessitate \$48.5 million for construction as presented in Table 3-2.



Table 3-2. Projection of Unidentified Project Needs.

Project Priority	Number of Projects	Estimated Construction Cost	Average Cost Per Project
A	14	\$4.9M	\$350K
B	230	\$23.0M	\$100K
C	236	\$17.7M	\$75K
Operations	388	\$2.9M	\$7.5K
Totals	868	\$48.5M	\$59K

3.1.3 Projected Future Needs

In addition to existing service requests and the resultant projections of unidentified projects, it is anticipated that service requests will continue to be received annually. If a stormwater user fee is implemented, there will likely be a spike in service requests during the first year.

For planning purposes, projections have been made for the continuing influx of service requests for the next 5 years:

- FY2009, 1000 service requests projected
- FY2010, 600 service requests projected
- FY2011, 400 service requests projected
- FY2012, 300 service requests projected
- FY2013, 200 service requests projected

It is anticipated that approximately 2,500 additional service requests will be received during this period. Using methods similar to those used in Section 3.1.2 to predict projects, these additional service requests could result in 1,500 to 1,800 new projects necessitating \$50 to \$100 million in construction funding. Projections for future service requests, projects, and associated construction costs will be revisited annually.

3.2 Floodplain Reclamation Projects

Another category of stormwater projects is intended to resolve flooding concerns along the floodplains of local streams through the acquisition of homes located in the floodplain. Approximately 10,000 parcels containing approximately 8,000 habitable structures are located in floodplains in Davidson County. Some of these habitable structures, poorly located in the floodplain, are subject to frequent flooding.



MWS has established a home buyout program to cooperate with the Federal Emergency Management Agency (FEMA) to purchase structures in the floodplain and return the floodplain to an undeveloped state. The program is funded with 75% Federal funds and 25% local funds. Based on historical activity, available Federal funds should provide an opportunity to continue the current program whereby MWS contributes \$1 million annually and FEMA contributes \$3 million annually. It is recommended that the current level of funding will escalate to \$2 million annually (local share) during the 5-year term of this capital improvement plan which will, with Federal matching funds, provide \$8 million annually for floodplain reclamation projects.

MWS is currently developing a database of homes eligible for participation in the home buyout program based on criteria established by FEMA. The database will include a prioritization scheme in order to determine the order in which specific properties could be acquired to maximize cooperative funding opportunities. Specific properties to be targeted under this program will be identified in the first annual update of the Capital Improvement Plan.

3.3 Floodplain Management Projects

MWS completed a *Major Capital Improvement Program, Planning and Prioritization Study* in 2003. This study presented a compilation of feasible flood solution alternatives identified in previous watershed studies performed by the United States Army Corps of Engineers and the Metropolitan Government. The watershed studies and resultant flood solution alternatives provide solutions to flooding problems along the floodplains of several local streams. A prioritization scheme was developed based on a variety of factors to organize the flood solution alternatives and determine the most feasible and cost-effective alternatives.

In the study, the costs associated with each alternative were adjusted for inflation using current pricing indexes at the time. A total of 171 projects were identified with an estimated construction cost of \$203.8 million. There are no current plans to implement the flood solution alternatives identified in the study; rather, the approach taken is to strategically remove habitable structures in the floodplain as federal cost-sharing funds become available. It should be noted that some of the flood solution alternatives identified in the study involved the removal of homes from the floodplain which creates some overlap with the floodplain reclamation projects discussed in Section 3.2.

3.4 Neighborhood Drainage System Planning

MWS has received several service requests since 2002 involving the flooding of a specific address but, when investigated, it was apparent that the entire neighborhood had an insufficient or non-existent drainage system. These areas of town were most often developed before modern development regulations were established and the streets and yards have become the defacto drainage system. Neighborhood-wide drainage improvements have heretofore been beyond the scope of MWS to plan, design, and construct due to funding limitations. With increased funding, MWS can begin the planning process to construct new drainage systems where none previously existed. The funding and staffing levels proposed will allow MWS to begin the planning process in FY2012 so that the subsequent 5-year business plan can incorporate funding needs for these larger neighborhood-wide drainage improvements.



3.5 Funding and Scheduling of Identified Projects

3.5.1 Project Funding Needs

Combining estimates from the identified project backlog and the projection of unidentified project needs for the next five years, approximately 1,036 projects are estimated resulting in a funding need of \$87.2 million, as presented in Table 3-3.

Table 3-3. Summary of Identified Projects and Projected Project Needs.

Project Priority	Number of Projects	Estimated Construction Cost	Average Cost Per Project
A	63	\$24.8M	\$394K
B	315	\$34.7M	\$110K
C	265	\$21.0M	\$79K
Unranked	5	\$3.8M	\$769K
Operations	388	\$2.9M	\$7.5K
Totals	1036	\$87.2M	\$84K

The projected funding need of \$87.2 million is limited to identified projects (Section 3.1.1) and estimates for future projects based the current accumulation of service requests that have been screened and ranked (Section 3.1.2).

Additional service requests, and resultant projects, are anticipated as discussed in Section 3.1.3. However, it is assumed that funding to address these future service requests will be encumbered beyond the current 5-year plan.

3.5.2 Annual Funding Allocations

Proposed annual funding allocations are presented in Table 3-4. The principal goal of annual funding allocations is to increase the rate at which MWS can correct local drainage concerns. With increased program funding, a secondary goal of MWS is to initiate construction to resolve all critical (Priority A) projects by the end of year two (FY2010).

In addition to allocations for local drainage projects, allocations are made for floodplain reclamation projects, as discussed in Section 3.2, to take advantage of available federal cost sharing programs. Total allocations for local drainage and floodplain reclamation projects begin at \$11 million annually and gradually increase to \$13.6 million annually over the 5-year planning period.



Table 3-4. Proposed Annual Funding for Stormwater Projects.

FISCAL YEAR	CAPITAL IMPROVEMENT PROJECTS	OPERATIONS PROJECTS¹	FLOODPLAIN RECLAMATION PROJECTS	TOTAL PROJECT FUNDING
2009	\$9.0M	\$1.0M	\$1.0M	\$11.0M
2010	\$9.15M	\$1.0M	\$1.5M	\$11.65M
2011	\$9.6M	\$1.0M	\$2.0M	\$12.6M
2012	\$10.1M	\$1.0M	\$2.0M	\$13.1M
2013	\$10.6M	\$1.0M	\$2.0M	\$13.6M
Totals	\$48.45M	\$5.0M	\$8.5M	\$61.95M

¹ Operations projects are small projects that do not require engineering design. The projects are normally performed by an annual contractor and are commonly referred to as "C" projects.

The total allocation for local drainage (capital and operations) projects is \$53.45 million. While this level of funding will address many concerns, allocations fall short of the projected need of \$87.2 million as presented in Table 3-3. The greatest anticipated funding need is for capital improvement projects. If customer demand wanes for operations projects or if federal matching funds are not available for floodplain reclamation projects, unused funds for these projects will be used to accelerate funding for capital improvement projects.

MWS will reevaluate project backlog and available project funding annually. If the project backlog grows more quickly than anticipated in FY2009 and FY2010; MWS will investigate the need for bond issues in FY2011 to accelerate project design and construction.

3.5.3 Project Scheduling

Projects currently identified and awaiting funding are discussed in Section 3.1. If funding is available as proposed, these projects will be tentatively scheduled for construction as presented in Tables 3-5 through 3-9.

Projects are initially scheduled based on merit, or priority, and not based on a geographical boundary. MWS addresses stormwater service requests based on the needs of the customers much like Metro Public Works would respond to complaints about the condition of the roads, Metro Police would respond to calls on criminal activity, or Metro Schools would construct new facilities based on the greatest needs of the customers.



While stormwater projects are initially scheduled on merit, there are other factors that can ultimately affect project design and construction schedules, including:

- complexity of engineering design plans,
- coordination with other utilities on relocations,
- coordination with other municipalities or the State of Tennessee,
- environmental permitting requirements,
- presence of endangered species,
- community acceptance of design approach,
- availability of easements or willingness of customers to donate easements,
- coordination with other city projects such as road construction or paving projects, and
- conditions necessitating an emergency response.

Further, projects of different priority classes may be grouped together based on geographic proximity to lower contractor mobilization costs and reduce costs that are afforded by project scale.



Table 3-5. Proposed Projects FY2009.

COUNCIL DISTRICT	PROJECT NUMBER	ADDRESS	PROJECT PRIORITY	ESTIMATED CONSTRUCTION COSTS
15	0045	Claridge Dr 608	A	\$600,000
26	0187	Trousdale Dr 5024	A	\$150,260
32	0255	J.P. Hennessey Dr 1500	A	\$114,800
24	0408	Clearview Dr 690	A	\$269,400
16	0421	Radnor St 103	A	\$90,838
29	0475	Edge O Lake Dr 2624	A	\$102,446
9	0500	Pierce Rd 1225	A	\$336,000
34	0566	Wayland Dr 4000	A	\$199,036
20	0567	Hite St 704	A	\$455,026
16	0576	Carlyle Pl 811	A	\$177,176
29	0605	Sailboat Dr 215	A	\$57,972
3	0606	Brick Church Pk 4164	A	\$500,702
26	0607	Shasta Dr 4875	A	\$176,712
13	0611	Coarsey Dr 1221	A	\$144,694
1	0621	Dyer Ct 112	A	\$360,000
15	0625	Castlewood Dr 2312	A	\$249,074
25	0643	Lone Oak Rd - 1217	A	\$486,970
15	0657	Steamboat Dr 2933	A	\$133,876
4	0670	Idlewild Dr 801	A	\$98,602
22	0671	Birch Bark Dr 7224	A	\$170,000
16	0739	Glenrose Av 112	A	\$1,436,409
2	0749	Garrison Dr 768	A	\$417,306
23	0784	Page Rd 214	A	\$258,468
23	0788	Tolbert Rd 7220	A	\$176,624
1	0789	Enchanted Cr 4425	A	\$109,262
15	0899	Visco Ct 50	A	\$252,899
16	0900	Valeria St 101	A	\$348,709
7	0903	Glenmeade Dr 2930	A	\$411,522
8	0904	Brunswick Dr 2700B	A	\$140,909



Table 3-6. Proposed Projects FY2010.

COUNCIL DISTRICT	PROJECT NUMBER	ADDRESS	PROJECT PRIORITY	ESTIMATED CONSTRUCTION COSTS
8	0240	Saunders Av 3867	A	\$368,000
31	0516	Woodland Hills Dr 5924	A	\$338,224
16	0564	Morton Av 475	A	\$286,540
8	0575	Baxter Av 3725	A	\$588,022
24	0645	Meadow Dr 3613	A	\$242,916
16	0765	Louise Dr - 2921	A	\$414,622
8	0766	Matthews Av - 795	A	\$429,456
2	0768	Dickerson Pk 3049	A	\$1,241,018
2	0769	Old Matthews Rd 2730	A	\$758,340
8	0777	Howard Av 1131	A	\$193,940
7	0780	Scott Av 2113	A	\$523,088
7	0783	Tammany Dr 2005	A	\$202,942
8	0786	Gallatin Pk 3115	A	\$590,802
8	0790	Lemont Dr 513	A	\$215,618
8	0051	Sunnymeade Dr 1109	B	\$278,462
34	0392	Hobbs Rd 2204	B	\$56,600
8	0466	Sunnymeade Dr 1303	B	\$110,900
2	0546	Whites Creek Pk 2528	B	\$93,526
23	0565	Brook Hollow Rd 831	B	\$156,476
35	0600	Collinswood Dr 6837	B	\$49,452
8	0623	Inglewood Circle N. 3811	B	\$540,004
7	0631	Litton Av 1301	B	\$138,788
25	0633	Summerwind Cr 715	B	\$147,402
16	0636	Louise Dr - 2932	B	\$190,624
15	0663	Windemere Dr 2744	B	\$195,992
33	0738	Cedarcroft Ct 105	B	\$467,888



Table 3-7. Proposed Projects FY2011.

COUNCIL DISTRICT	PROJECT NUMBER	ADDRESS	PROJECT PRIORITY	ESTIMATED CONSTRUCTION COSTS
10	0164	Sunnyslope Ct 613	B	\$85,020
8	0177	Joyce Ln 608	B	\$310,920
5	0181	Locust St 2644	B	\$48,500
10	0188	Dinwiddle Dr 306	B	\$74,470
34	0193	Cheek Rd 128	B	\$464,900
19	0202	Clay St 1501	B	\$50,220
34	0203	Harding Pl 2218	B	\$109,680
14	0229	Susan Dr 2914	B	\$161,600
8	0239	Saunders Av 3809	B	\$57,000
1	0250	Echo Ln 3645	B	\$123,600
15	0256	Ivywood Dr 270	B	\$68,800
21	0261	Taylor Merritt Ct 929	B	\$22,800
11	0274	Samoa Dr 4237	B	\$98,000
9	0275	Canton Ps 489	B	\$94,000
9	0288	Anderson Ln 240	B	\$92,800
28	0309	Aldersgate Rd 1032	B	\$45,000
8	0315	Allenwood Dr 2502	B	\$61,000
25	0316	Hoods Hill Rd 3601	B	\$108,000
15	0317	Graylynn Dr 240	B	\$40,000
30	0318	Ocala Court North 429	B	\$47,000
6	0339	Boscobel St 1519	B	\$115,000
1	0342	Whites Creek Pk 7982	B	\$113,000
13	0343	White Pine Dr 3312	B	\$79,740
22	0352	Stacy Square Ct 8103	B	\$112,000
22	0353	Oakhaven Tc 7501	B	\$60,000
8	0360	Hutson Av 3877	B	\$88,000
14	0371	Edgemont Dr 3109	B	\$41,600
20	0385	Charlotte Pk 5920	B	\$71,356
15	0398	Driftwood St 407	B	\$11,830
24	0404	Lauderdale Rd 239	B	\$412,308
15	0418	Adair Rd 433	B	\$127,872
7	0437	Burns St 2141	B	\$146,920
27	0438	Aquatic Rd 4912	B	\$51,984
1	0439	Snell Bv 1472	B	\$108,620
4	0440	Emmitt Av 260	B	\$56,048
1	0441	Bull Run Rd 4633	B	\$168,878
10	0465	Appletree Rd 202	B	\$78,878
8	0474	Inga St 2611	B	\$135,030
24	0501	Lynnbrook Dr 715	B	\$150,640
13	0505	Woodlark Ct 308	B	\$81,368
13	0508	Saturn Dr 1239	B	\$117,106
31	0525	Petersburg Ln 5821	B	\$141,084
28	0531	Irma Dr 836	B	\$111,362
28	0532	Ezell Rd 3353	B	\$225,036



Table 3-7. Proposed Projects FY2011...continued.

COUNCIL DISTRICT	PROJECT NUMBER	ADDRESS	PROJECT PRIORITY	ESTIMATED CONSTRUCTION COSTS
30	0538	Barella Dr 4923	B	\$239,834
11	0545	Terry Pl 408	B	\$213,334
7	0560	Gallatin Pk 3204	B	\$187,716
33	0578	New Towne Rd 3456	B	\$92,362
33	0588	Bell Crest Dr 5300	B	\$65,512
24	0589	Acklen Park Dr 407	B	\$43,480
12	0590	Roxborough Dr 5205	B	\$43,904
27	0599	Edmondson Pk 5433	B	\$92,052
29	0604	Bell Rd 264	B	\$84,200
15	0608	Elm Hill Pk 1411	B	\$249,010
29	0610	Flintlock Ct 1016	B	\$81,944
1	0619	Boyd Dr 4126	B	\$363,000
25	0635	Hampton Av 2100	B	\$103,554
30	0637	Melpar Drive 367	B	\$551,718
1	0646	Judd Dr 572	B	\$172,440
26	0652	Paragon Mills (B-8) 500	B	\$75,928
7	0653	Scott Av 1914	B	\$675,390
23	0665	Leake Av 401	B	\$37,954
3	0672	Huntland Dr 3512	B	\$70,272
1	0676	Olsen Ln 3308	B	\$48,674
14	0678	Ragsdale Ct 812	B	\$21,456
13	0679	Harbor Way 409	B	\$64,342
34	0797	Harding Pl 3808	B	\$66,704



Table 3-8. Proposed Projects FY2012.

COUNCIL DISTRICT	PROJECT NUMBER	ADDRESS	PROJECT PRIORITY	ESTIMATED CONSTRUCTION COSTS
34	0263	Granny White Pk	A	\$1,143,010
5	0587	Douglas Av 822	A	\$407,429
4	0642	Madison Bv 745	A	\$417,305
16	0740	Patterson St 509	A	\$851,449
20	0194	Erroll Ln 300	B	\$12,600
16	0233	Drummond Dr 1003	B	\$136,940
14	0252	Allen Rd 822	B	\$255,000
16	0260	Grandview Av 2802	B	\$139,600
10	0306	Green Acres Dr 302	B	\$48,800
2	0383	Haynie Av 410	B	\$76,480
3	0166	Greer Rd 2528	C	\$59,650
10	0167	Old Springfield Pk 8345	C	\$2,930
22	0168	Birch Bark Rd 7123	C	\$244,820
8	0169	East Trinity Ln 1010	C	\$48,870
4	0172	Ronnie Rd 700	C	\$48,980
33	0180	Folkstone Dr 3714	C	\$16,170
29	0182	Nashboro Bv 2001	C	\$120,900
14	0195	Philwood Dr 618	C	\$116,852
3	0199	Buena Vista Pk 5232	C	\$25,280
11	0215	Cascade Dr 4762	C	\$60,600
25	0231	Glen Echo Rd 1621	C	\$170,600
8	0241	Saunders Av 4424	C	\$368,000
23	0251	Belton Dr 828	C	\$131,000
9	0273	Warrior Rd 305	C	\$34,000
9	0289	Anderson Ln 900	C	\$138,800
21	0312	43rd Av North 934	C	\$14,000
7	0344	Barclay Dr 2698	C	\$141,400
25	0354	Glendale Pl 4507	C	\$21,000
24	0379	Dakota Av 5007	C	\$130,000
20	0423	Nashua Ln 607	C	\$426,000
31	0443	Retriever Ct 5921	C	\$113,822
8	0455	Gra Mar Dr 4412	C	\$60,746
24	0463	Hillwood Bv 230	C	\$21,180
25	0507	Woodlawn Dr 2907	C	\$24,220
13	0517	East Thompson Ln 329	C	\$112,264
14	0523	Belding Dr 210	C	\$118,488
15	0654	Spence Ln 130	C	\$474,688
2	0658	Mainstream Dr 631	C	\$6,642
34	0820	Old Hickory Bv 2203	C	\$81,500
26	0434	Harding Pl Ditches	---	\$1,480,898
26	0436	Hill Rd Ditches	---	\$453,523



Table 3-9. Proposed Projects FY2013.

COUNCIL DISTRICT	PROJECT NUMBER	ADDRESS	PROJECT PRIORITY	ESTIMATED CONSTRUCTION COSTS
25	0704	Hampton Av 3434	A	\$1,603,494
13	0778	Saturn Dr 1301	A	\$637,813
26	0435	Blackman Rd Ditches	---	\$739,109
14	0639	McCrory Creek	---	\$66,950
4	0664	Neelys Bend Ditches	---	\$1,102,245



4.0 RATE STRUCTURE ANALYSIS

This Rate Structure Analysis (RSA) discusses the basic rate methodology that will be employed to fund stormwater services, and identifies the secondary funding methods and rate modifiers approved by the MWS staff and consultant team (Team). Basic rate structure and fee calculation policies are presented, and examples of the fee calculation method for different classes of users are shown.

4.1 Stormwater Funding

There are a number of ways to raise funds for stormwater programs, most of which generate only insignificant amounts of revenue. The two most common effective ways of funding the core of a stormwater program are from general fund revenues and from user fees.

The general fund is derived chiefly from property taxes. Funding of the stormwater program at appropriate levels would necessitate an increase in property taxes by an estimated \$0.166. Previous studies recommended exploring the use of a stormwater user fee funding approach which was codified in the council ordinance directing this study. A stormwater user fee has significant advantages over use of the general fund including:

- Equity – there is a direct causal link between the fee a property owner pays and the impact of their property on the stormwater system or their use of that system. (“The more you pave the more you pay”);
- Stability – the stormwater revenue stream is tied to land use and not to the vagaries of the annual general fund budget approval;
- Flexibility – the stormwater user fee has the ability to be adjusted to reflect individual property differences, watershed locations, and other factors; and
- Adequacy – the stormwater fee is sufficient to cover most of the costs of the stormwater program while remaining relatively small compared to other fees and charges.

4.2 The Public Stormwater System

Consistent with its responsibilities to protect citizens and property and to comply with regulatory mandates, Metro Government has assumed appropriate responsibility for the public stormwater and flood control system within Davidson County, excluding the satellite cities. This system carries stormwater runoff from all properties within the County. This responsibility is consistent with the significant capital investment made by the Metro Government to protect flowing waters from stormwater pollution, prevent streambank erosion, and to protect property and citizens living nearby. The extent of this public stormwater system was defined in ORDINANCE NO. BL2007-1440 as:

“Storm water facilities” or “flood control facilities” shall mean all natural and manmade conveyances and structures for which the partial or full purpose or use is to convey surface flood runoff water within the jurisdictional boundaries of the Metropolitan Government. This includes all natural conveyances (1) for which the Metro Government has assumed a level of maintenance responsibility; (2) to which the Metro Government has made improvements; (3) which have or may pose a threat to public property because of flooding; or (4) or for



which the Metro Government is accountable under federal or state regulations for protecting the water quality within its jurisdictional boundaries.

The services provided with respect to this system reflect common and appropriate practices including: planning, engineering, regulatory services, compliance, capital construction, remedial and routine maintenance, public service and education. It is this set of services applied throughout the public system that the rate structure is designed to serve and fund.

4.3 Overview of the Rate Structures

Utility funding is based on an independent revenue stream that is dedicated to a specific purpose such as water supply, wastewater treatment, solid waste management, or stormwater management. Service fees provide the bulk of a utility's revenue. A methodology for calculating the service fees, based on customers' use of the utility services, must be identified in order to establish the basis for the revenue stream.

In the case of stormwater services, a user fee recognizes properties' use of the stormwater system for discharging runoff. The stormwater system is a public system that carries runoff away from both public and private properties. The framework that describes how much each property pays is called the "rate structure."

The rate structure developed for a particular utility is divided into three modules:

- Basic rate methodology;
- Modification factors, which can be applied to any of the rate concepts to enhance equity, reduce costs, and meet other objectives; and
- Secondary funding methods that can be adopted in concert with the service charges.

Rate structures differ among utilities. The differences sometimes reflect program goals or priorities, the influence of other policy objectives such as growth management or economic development, technical constraints, or the availability of resources like geographical information systems or other databases.

A key attribute of utility service fee funding is that the governing body of a utility's jurisdiction has broad authority to design its rate methodology to fit local circumstances and practices and achieve an allocation of the cost of services and facilities that it desires while staying within legal boundaries. There are no absolute rules or proscriptions. The goal of this analysis is to provide a rate structure that reflects the character and desires of the community and:

- is equitable and reasonable;
- is not discriminatory or confiscatory;
- has costs that are substantially related to provision of facilities and services;
- has a rate that is related to demand/use of the stormwater systems and services for each individual property (rational nexus); and
- reflects the authority inherent in the state constitution.



4.4 Overview of Nashville's Rate Structure

The initial step in selecting a rate methodology was to choose among alternatives for the basic rate methodology. The objective was to identify one or more approaches that can provide adequate, stable, and equitable funding for the stormwater management program for the foreseeable future.

Then, modifying factors that might be used to fine-tune the various rate structures to local circumstances were evaluated. While a number of potential rate modifiers were considered, the ones adopted were:

1. Flat rates in three tiers for single-family residences; and
2. A set of stormwater credits that recognize extraordinary private activities that either reduces a specific property's impact on or use of the stormwater system or program, or that specifically reduce the stormwater program costs of Metro Water Services.

Finally, secondary funding methods that would be appropriate complements to a basic rate structure were examined. Given the needs of the program and its relative simplicity, the key secondary funding methods considered in detail were: plans review fees, appeals fees, and grading permit fees.

After identifying the preferred approach, a more detailed analysis was conducted that addressed funding the stormwater program using the selected methodology in concert with other funding methods.

4.5 Basic Rate Methodology

The basic rate methodology defines the basis for the rate that users will be paying. The three main impacts on surface water of urban development are increases in peak flow, volume of discharge, and amount of pollution. All impacts can fit into these three basic categories. The variable most positively associated with each of these three major impacts is the conversion of pervious areas (forests and fields) to impervious areas (pavement, roof tops, and other hard surfaces).

Accommodating the runoff that occurs when pervious area that typically absorbs rainwater, is converted to impervious area requires Metro to invest in the public drainage system. Therefore, it is appropriate to use some measurement of impervious area or surrogate of impervious area in the rate methodologies. Most stormwater programs in Tennessee have taken this approach and a 2007 survey found that 74 percent of all stormwater programs responding used impervious area as a factor for rate calculation¹. While impervious area does not directly account for all of the stormwater program costs, urbanization of land as reflected in intensity of development is, by far, the best measure of cost causation and provides a court-tested rational nexus for the fee amount on any property.

¹ "Stormwater Utility Survey", Black and Veatch, Kansas City, 2007.

Figure 4-1 shows an example of the impervious coverage on a non-residential parcel in Davidson County. Impervious area includes such things as roof tops, sidewalks, parking areas, patios, tennis courts and gravel traveled ways – any man made surface that water cannot penetrate effectively and thus must run off. This coverage was developed through the use of aerial photography and digitization of the impervious cover for each non-single family residential parcel. The method for single family parcels is discussed in Section 4.6.1.

There are, however, additional ways to configure the rate methodology to emphasize certain other impacts or recognize the benefits of certain kinds of development practices. Many of these considerations are handled with a stormwater crediting or secondary funding system, but some factors can also be handled in the makeup of the basic rate methodology itself. Two factors commonly considered are:

- Some communities charge for gross parcel area in addition to impervious area, reasoning that stormwater runs off all parcels and thus, all should pay.
- Some communities want to encourage green space and set up charges based on an intensity of development factor – so that the same amount of imperviousness would be charged less if it were located on a larger lot with more green space.

These latter two approaches are almost opposites of each other in how they treat open space. The 2007 Black & Veatch survey, which found that a majority (65%) of stormwater programs base charges on impervious area only, also found that of the remaining stormwater programs:

- 9% charge based on gross area plus impervious area.
- 12% recognize the benefits of green space through an intensity of development factor.
- 14% use another basis for fees.

The Team discussed the various options, reviewed recommendations from previous studies and looked in detail at three options:

Option 1. Charge on the basis of impervious area only.

Option 2. Charge on the basis of impervious area plus a lesser charge for total gross area. Note that under this charge vacant land would be charged some amount – typically much less per unit area than impervious area.



Figure 4-1. Example of Non-Residential Parcel Impervious Area.



Option 3. Charge on the basis of intensity of development and recognize green space with a reduced charge if the percent impervious is less than a standard percentage.

After examining example user fee charges, and discussing the pros and cons of each option, the Team agreed that Option 1, allocation of the costs of the stormwater program on the basis of total impervious area, fit Nashville best. While many favored encouraging green space, it was decided that this issue could be addressed by rate modifiers. Based on this decision all properties with impervious area, which is basically all improved-upon properties, will be assessed a stormwater user fee.

Roadways, as distinct from parking lots, driveways, etc., that meet the following three conditions are exempt from payment of the stormwater fee. They are roadways that are:

1. located on public lands or within a public right-of-ways; and
2. built and maintained for general public use; and
3. maintained to MWS standards for major and minor drainage systems.

The Stormwater Director shall provide interpretation of these conditions as requested.

Policy Statement: An estimate of the total amount of impervious area shall serve as the single rate methodology basis for the calculation of user fees for all properties.

4.6 Rate Modifiers

Rate modifiers are the second component of the rate structure and are policies that change the user fee that properties are charged. They are designed to appropriately increase simplicity or enhance equity.

A number of potential rate modifiers were considered including:

- fixed cost per account to recover administrative costs affiliated with the stormwater program,
- urban and rural service areas,
- combined sewer overflow (CSO) service area,
- floodplain surcharges to recover the disproportionate share of the stormwater program that goes to protect floodplain properties, and
- various other surcharges.

The following key policies were adopted.

4.6.1 Residential Rate Policy

The Team discussed the basis for residential charges and for the equivalent or representative residential unit billing amount. Because the variation among residential properties in impervious area is relatively small (compared with non-residential properties), many cities choose to use a simplified residential rate structure with only one flat rate for residential properties. This approach decreases costs without sacrificing equity. However, three options were examined:



Option 1. A single flat rate charge for residences.

This would not diminish the overall level of equity of a service fee if the larger homes are charged as commercial property.

Option 2. A three-tiered structure.

This option might enhance the equity compared to a flat rate given the many smaller homes and the number of very large homes in the housing stock. There does not seem to be a justification in going to more than three tiers.

Option 3. Individually determined charges.

Data for single family residences indicates that there is insufficient data available to make an individually measured calculation which would necessitate expensive data collection.

The Team discussed issues of simplicity and equity in consideration of simplified charges and felt that single family residential parcels with relatively larger amounts of impervious area should pay more than those with less. They also felt that measurement of each individual parcel required a level of effort beyond that necessary and reflective of equity considerations. So, the Team felt that a three-tiered residential structure fit Nashville's circumstances best. The enhanced equity was a deciding factor. For practical reasons it was determined that parcels with impervious area less than 400 square feet would be exempted from the fee altogether.

In Nashville there are 218,443 parcels that were investigated for stormwater billing, of which 71% were occupied by single family residential (SFR) structures. The remaining parcels were occupied by structures that are not single family residences (non-single family residential or NSFR).

It was decided to break the residential properties into three tiers as indicated in Figure 4-2 and to bill NSFR properties based on their proportion to the median single family residence. A sample of residential parcels was analyzed to determine the appropriate breakpoints for the three tiers and a unit (termed the Equivalent Residential Unit or ERU) for billing NSFR properties. The median size of impervious area on a single family residential parcel is about 3,200 square feet and this was chosen as the unit size for billing. The low tier is made up of residential structures with less than 2,000 square feet of impervious area, the middle tier are those between 2,000 and 6,000 square feet of impervious area, and the high tier is made up of those above 6,000 square feet of impervious area, as indicated in Figure 4-2.

Based on final analysis of all SFR properties, 18% are in the low tier, 8% are in the high tier, and the rest are in the middle. The low tier will be charged at the rate of 0.5 ERUs or one half the charge of the middle tier. High tier homes will be charged at the rate of 1.5 ERUs or 50% more than the middle tier. See 4.6.2 discussion of two additional tiers that result from credit or maintenance support applications.

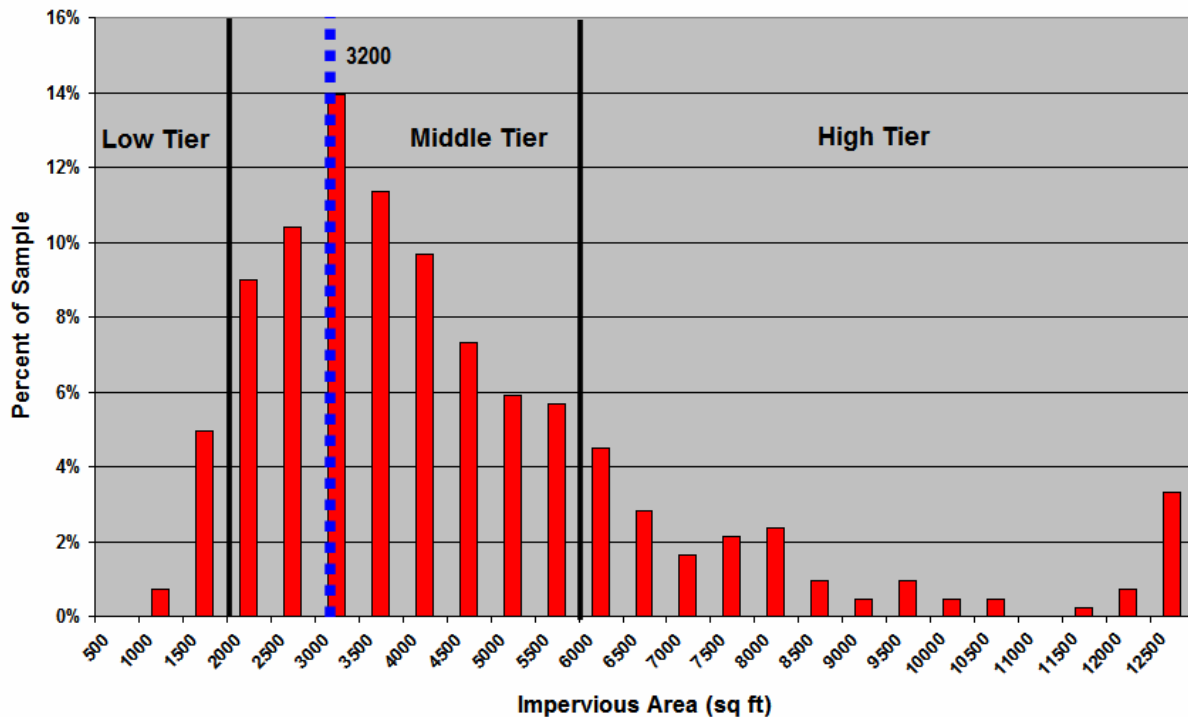


Figure 4-2. Percent of Single Family Residential Properties by Impervious Area.

On the basis of Metro Water Services' ability to accurately measure impervious areas, all NSFR properties will be charged a number of measured ERUs rounded up to the next whole ERU. Thus the number of ERUs on any NSFR property is equal to the total impervious area divided by 3,200 and rounded up to the next whole number.

Policy Statement:

- (1) *The ERU size will be set at the representative residential median value of 3,200 square feet of impervious area.*
- (2) *The stormwater user fee will charge a simplified flat fee in three tiers for single family residential properties with the break points set at 2,000 and 6,000 square feet.*
- (3) *The low tier will be charged on the basis of one-half (0.5) ERUs, the middle tier on the basis of one (1) ERU and the high tier shall be charged on the basis of one and a half (1.5) ERUs.*
- (4) *All NSFR properties will be charged on the basis of number of ERUs rounded up to the next whole number.*



4.6.2 Stormwater Credits

The Team examined user fee credits, a type of rate modifier. A credit is an ongoing reduction in a property's calculated stormwater fee for:

- on-going activities on the property that reduce the use of the public stormwater system;
or
- on-going activities on the property that reduce Metro's cost of service.

Generally, stormwater credits are granted both to increase equity and to provide incentives to implement an overall community stormwater management plan. Credits typically do not have significant total revenue reduction outcome – normally less than 5% on existing developments. There may be a larger reduction for new developments that typically must meet more stringent design standards and, thus, qualify for more credits.

Stormwater programs vary considerably in the amount of the user fees that they make eligible for crediting. The amount of a fee that is eligible for credits might be seen as the relative “generosity” of the credit. There are rational reasons supporting a broad range of considerations.

The extent or generosity of the credit should include consideration of which stormwater program costs can actually be reduced by the qualifying activities for which users can receive credits. For instance, while a business may reduce its impact on the stormwater system through installing and maintaining a detention pond, Metro may be unable to credit the business for its entire bill. Reasons for this might include the fact that a detention pond does not reduce all of the impacts of the property (volume and pollution) and the reality that there are some fixed program costs that remain regardless of individual actions.

The Team was in favor of offering a wide variety of significant credits to all those who qualified. The following categories of activity may qualify a property for a stormwater credit:

1. Stormwater Detention Credit – Up to 40%

Non-single family residential properties with structural controls or measures that meet Metro's current design standards and performance criteria for reducing peak demand and controlling the rate at which the runoff volume enters Metro's stormwater system may be eligible for a Stormwater Detention Credit up to 40%. The site should be designed so that the post-developed hydrologic performance of the area is similar to that of the pre-developed land. Partial credit may be given to properties that were not required to meet current design standards and that therefore only partially meet Metro's current design standards and performance criteria.

To receive this credit, owners must provide documentation, including engineering calculations, that the structural controls meet current design standards and performance criteria.



Multi-family residential developments or subdivisions that have constructed and continue to maintain detention facilities with or without water quality controls included may also receive credit. To establish this credit, two additional residential tiers were added:

- Low Credit Tier – which shall be defined as 0.25 ERU
- High Charge Tier – which shall be defined as 2.00 ERUs

Any prorated single family development (e.g. condominiums, townhouse developments) that builds and maintains a stormwater treatment structure shall be credited by moving each property within that development to the next lowest tier. For example, middle tier structures (2,000-6,000 square feet of impervious surface) shall be charged the low tier value (0.5 ERUs), etc. Low tier structures shall be moved into the Low Credit Tier category.

Any prorated single family development that enters into an agreement for Metro to operate and maintain its stormwater treatment structure will be moved into the next higher tier. For example, middle tier structures (2,000-6,000 square feet of impervious surface) shall be charged the high tier value (1.5 ERUs), etc. High tier structures shall be moved into the High Charge Tier category.

Non-prorated SFR developments that have a common pond can apply for a credit and, at that time, the proper charges will be calculated. If no credit is applied for, the homeowners association or similar organization will receive a bill for the impervious area of the common area as a separate parcel.

2. Stormwater Quality Credit – Up to 20%

Non-residential properties with structural controls or measures that meet Metro's current design standards and performance criteria for reducing stormwater runoff pollution to Metro's stormwater system may be eligible for a Stormwater Quality Credit up to 20%.

3. Individual NPDES Permit Credit – 20%

Properties that are covered by and fully compliant with a National Pollutant Discharge Elimination System (NPDES) Industrial Stormwater General Permit and that are not receiving any other Metro stormwater user fee credits may be eligible for an Individual NPDES Permit Credit of 20%. These properties must support Metro's own NPDES permit compliance and stormwater pollution control efforts by managing stormwater quality on their site through structural and non-structural controls as required by the site's NPDES permit.



4. Stormwater Education Credit - Up to 50%

Elementary, middle, and high school institutions, both public and private, that provide stormwater pollution prevention education for their students may be eligible for a Stormwater Education Credit of up to 50%. The rationale behind this credit is that the stormwater education provided by the institution will not only assist Metro in meeting NPDES permit requirements, but will also instill an appreciation and stewardship of water resources that will benefit and/or decrease the demand on Metro's stormwater management system or program in the long term.

6. Low Impact Residential Development Credit – 20%

Single family residential properties located in subdivisions that meet the following criteria may be eligible for a Low Impact Residential Development Credit of 20%:

- were designed and built to meet Metro's current water quality standards and performance criteria,
- use integrated low impact design such that the hydrologic performance of the developed land, and
- have runoff and pollution characteristics that mimic that of pre-developed land.

The homeowner's association is responsible for maintaining all structural controls within the subdivision and applying for the credit on behalf of its residents.

7. Privately Maintained Properties Credit – 60%

Non-residential properties, commonly-owned, contiguous, and larger than 100 acres that privately maintain the complete stormwater (public and private) system to meet or exceed Metro's own maintenance standards may be eligible to receive a Privately Maintained Properties Credit of 60%. The purpose of this credit is to recognize those large properties that relieve Metro of routine and remedial maintenance costs and responsibility. The Stormwater Quality Credit is the only other credit that can be used in addition to this credit.

8. Total Capture Credit – Up to 80%

Non-residential properties that take measures to capture all stormwater runoff volume and retain onsite may be eligible for a Total Capture Credit up to 80%.

Based on an analysis of the program, it was determined that those costs that were directly related to specific activities on individual properties included capital construction, maintenance, remedial construction, master planning, educational costs, and half of the personnel costs. These costs total about eighty percent (80%) of the total program costs. It was decided that in no case would any property obtain a credit in excess of this percentage except in the case where a property handles the impacts of another property. In that case, with the approval of Metro, the other property's credit could be realized by another.



It is the responsibility of the property owner (or his/her designee) to apply for stormwater user fee credits, and to provide the necessary substantiating information with a credit application. MWS will prepare a Credit Manual that will provide, at a minimum, detailed information regarding each available credit, the documentation that must be provided to MWS in order to qualify for the credit, credit application forms, right-of-entry forms for inspections, inspection checklists, and the credit review and approval process.

Any approved credit application received within one year of the date of the initiation of the stormwater user fee will apply retroactively to the first billing of the property. MWS maintains the right to inspect the site to ascertain credit applicability at the time of credit application and at any time that the site is receiving credit. Credit can be revoked or reduced at any time that it is determined that controls, measures, or activities are not performing to the credit standard.

Policy Statement:

(1) NSFR properties and aggregated SFR properties will be allowed credit for the following activities:

- Stormwater Detention Credit – up to 40%***
- Stormwater Quality Credit – up to 20%***
- Individual NPDES Permit Credit – 20%***
- Stormwater Education Credit – up to 50%***
- Low Impact Residential Development Credit – up to 20%***
- Privately Maintained Properties Credit – 60%***
- Total Capture Credit – up to 80%***

(2) The maximum credit allowable for any property (80%)

4.7 Secondary Funding Methods

The third component of the rate structure is secondary funding methods, which are revenues in addition to the user fees for the stormwater program. A number of secondary funding methods were considered. However, there are only a couple of additional ways Metro Government generates funds for stormwater and they revolve around collection of fees and obtaining Federal and State funding in the form of grants or on a cost-share basis. The grants and cost share Federal and State funds go toward special program efforts that, if the funds were not available, would not be pursued. This includes applying for grants for water quality programs or for funds to remove homes from floodplains. As such, the Federal funds are not included in this analysis in a way that would reduce the user fee.

Supplementary funding methods in the form of fees generate only a minor portion of the total funding needed. The primary purpose of most would be to enhance equity, improve public acceptance of the stormwater program, or expedite certain priorities. Many could be incorporated directly into a service fee rate structure rather than established separately.



Metro currently employs several secondary methods to generate funds including plans review and grading permit fees and appeals fees. These funds are included in the rate estimate and serve to reduce the program costs attributable to the user fee. These are seen in line 12 of Table 5-2 in the next section.

Policy Statement: *It was decided to continue with current secondary funding methods including: plans review and grading permit fees, and a fee for stormwater appeals.*

4.8 Effects on Water and Sewer Rates

Pursuant to Section 15.64.032 B of the Metro Code of Laws, Rafetelis Financial Consultants (RFC), Metro's water and sewer rate consultants, have recommended that any imposition in a stormwater user fee would have no effect on water rates. Proceeds from water ratepayers are not used to fund stormwater services. However, since proceeds from sewer ratepayers are used, in part, to fund qualified stormwater projects, a decline in sewer rates can, theoretically, be calculated. Based in their analysis, RFC estimates that sewer rates could theoretically decline by 10-12% if a stormwater user fee was imposed in lieu of using sewer ratepayer money to fund certain qualified stormwater projects.

After a rate reduction of 10-12%, approximate volumetric rates for each 100 cubic feet of sewer would be:

Residential	\$3.35
Small Commercial and Industrial	\$3.75
Intermediate Commercial and Industrial	\$3.05
Large Commercial and Industrial	\$2.33

However, it is important to note that the budget for sewer will be well over \$100 million for FY2009. Capital obligations for repair and replacement of the system in FY 2008 were derived, in large part, from a one time liquidation of a debt service reserve fund. Given budget constraints, a decline in sewer rates could result in a diminished ability of MWS to meet its capital obligations to repair and replace parts of the sewer system.

Further, it is important to note that water and sewer rates have not increased since 1996. The last rate action was a decline in sewer rates in 1999. Meanwhile, expenses associated with the safe and efficient operation of the water and sewer system have increased. Costs since 1999 for electricity have risen 34%; water treatment chemicals 151%, building and plant security 199%. Metro Water Services currently has approximately \$400 million in outstanding debt. Our contract, or covenant, with bond holders requires that we maintain revenues equal to 110% of debt service. If we wish to issue more debt for capital improvements, that figure rises to at least 120%. Any decline in water and sewer rates may result in default of our outstanding debt obligations and our inability to fund necessary capital improvements.



5.0 RATE STUDY AND CASH FLOW ANALYSIS

The Rate Study (RS) applies the program Cost of Service (COS) to the Rate Structure Analysis (RSA) for a determination of the final rate. It demonstrates the proposed program's ability to meet the projected program costs during the five year analysis period. In doing so, the RS calculates the available rate base across all customer classes. This projected rate base provides the means for calculation of program rates and fees. The RS also presents a cash-flow analysis for the first five years of the stormwater management program that are funded by the stormwater user fee.

5.1 Rate Base

The amounts of the user fees that are needed to recover a program's cost of service are established by estimating the available rate base in the service area. The rate base is the number of Equivalent Residential Units (ERU), or billing units, which is determined by the total number of users in the service area.

Based on the RSA, the ERU was chosen to be the median single family residential (SFR) value of 3,200 square feet of impervious area. Each non-single family residential (NSFR) property's impervious area was measured by using MWS's geographic information system and aerial photography. Single family (and up to quadraplex) residential properties were analyzed using the tax file and mathematical analysis and divided into SFR-Low Tier, SFR-Middle Tier, and SFR-High Tier. Numerous policy decisions were made covering specific classes of rate payer such as condominiums, apartments, etc. Table 5-1 shows the ERU estimates for each type of property. Note that the ERUs for SFR-Middle Tier reflect 1 ERU per property, SFR-High Tier represents a multiplier of 1.5 for each individual property while the SFR-Low Tier is counted as one-half ERU each. All NSFR properties were individually measured and rounded up to the next whole ERU. Many NSFR properties have larger impervious areas than SFR properties, and therefore, many NSFR properties have more than 1 ERU. This can be seen in the large number of ERUs that result from NSFR properties.

Table 5-1. Utility Rate Base.

Property Category	Number of Properties	Number of ERUs
Single family residential – low tier	28,329	14,164
Single family residential – middle tier	114,205	114,205
Single family residential – high tier	12,123	18,184
Non-single family residential	17,733	271,171
Prorated parcels – condos, etc.	24,846	15,900
Vacant	21,207	-0-
TOTAL	218,443	433,624



The data is current as of December 2007 and will be updated prior to the initial billing.

Once the rate base is known, the projected cost of service is divided by the estimated number of billing units that are present, which yields the user fee per unit that must be charged.

5.2 Rate Model and Cash Flow Analysis

A rate model has been developed and tailored specifically for the cash flow and rate analysis for Nashville. The model has been used to evaluate the alternative user fee rate schedules and the resultant cash flow over the five-year rate analysis period. It incorporates the program strategy, specific priorities, cost of service, and rate base data summarized in previous sections. The cash flow analysis module of the rate model is shown in Table 5-2.

Table 5-2. User Fee Rate Projection.

Nashville Metro Water Services						
Stormwater Cost of Service Analysis/Rate Model						
Revenue/Expenditure (Cash Flow) Analysis						
		Year 1	Year 2	Year 3	Year 4	Year 5
1 Expenses						
2	Inflated Annual Operating Expense	\$ 12,762,964	\$ 14,104,299	\$ 13,870,207	\$ 14,124,119	\$ 14,597,098
3	Inflated Annual Capital Expense and Bonded Capital Expense	\$ 12,825,000	\$ 12,240,000	\$ 13,235,000	\$ 13,785,000	\$ 14,115,000
4	<i>Subtotal: with Inflation</i>	\$ 25,587,964	\$ 26,344,299	\$ 27,105,207	\$ 27,909,119	\$ 28,712,098
5	Bond Sale Costs and Debt Service	\$ -	\$ -	\$ -		
6	Bond Debt Service Coverage	\$ -	\$ -	\$ -	\$ -	\$ -
7	Emergency Reserve	\$ -	\$ -	\$ -	\$ -	\$ -
8	Total: Expenses	\$ 25,587,964	\$ 26,344,299	\$ 27,105,207	\$ 27,909,119	\$ 28,712,098
9 Other Revenues						
10	Funds Carried Forward	\$ -	\$ 421,004	\$ 637,177	\$ 683,071	\$ 518,927
11	Bond Sales Receipts and Associated Funds	\$ -	\$ -	\$ -	\$ -	\$ -
12	Fees and Charges	\$ 583,000	\$ 583,000	\$ 583,000	\$ 583,000	\$ 583,000
13	Interest Income	\$ 280,236	\$ 272,126	\$ 290,893	\$ 302,198	\$ 309,760
14	Other Resources	\$ -	\$ -	\$ -	\$ -	\$ -
15	Total: Other Revenues	\$ 863,236	\$ 1,276,129	\$ 1,511,070	\$ 1,568,270	\$ 1,411,687
16	Revenue Requirement	\$ 24,724,728	\$ 25,068,169	\$ 25,594,137	\$ 26,340,850	\$ 27,300,411
17 Revenue Stream Reduction Allowances						
18	Bad Debt	\$ 255,880	\$ 263,443	\$ 271,052	\$ 279,091	\$ 287,121
19	Offsets					
20	Credits	511,759	790,329	1,084,208	1,395,456	1,435,605
21	Total: Revenue Reduction Allowances	\$ 767,639	\$ 1,053,772	\$ 1,355,260	\$ 1,674,547	\$ 1,722,726
22	Adjusted Fee Revenue Requirement	\$ 25,492,367	\$ 26,121,941	\$ 26,949,397	\$ 28,015,397	\$ 29,023,137
23 Estimate of Fee Needed/Year						
24	ERU Revenue Requirement	\$ 25,492,367	\$ 26,121,941	\$ 26,949,397	\$ 28,015,397	\$ 29,023,137
25	Number of ERUs	433,624	435,792	437,971	440,161	442,362
26 Fee Recommendation						
27	Recommended Monthly Charge per ERU	\$ 4.98	\$ 5.12	\$ 5.26	\$ 5.40	\$ 5.55
28	Estimated Annual ERU Revenue	\$ 25,913,370	\$ 26,759,118	\$ 27,632,469	\$ 28,534,323	\$ 29,465,612
29	Estimated Year-end Revenue Surplus (Deficit)	\$ 421,004	\$ 637,177	\$ 683,071	\$ 518,927	\$ 442,475
30	Percent Operating Fund Balance (Operating Reserves)	3.0%	4.6%	4.8%	3.6%	3.1%

This table summarizes the revenue/expenditure analysis assuming three tiers for single-family residences and the cost of service and rate base summarized in this report.



The cash-flow analysis compares the projected costs found in the Cost of Service Analysis, including operations, capital expenditures, and non-operating expenses, etc. with revenues. Allocations to recommended operating reserves are identified, a forecast of revenues other than service fees is incorporated, and allowances are made for bad debt and credits. The service fee is calculated based on this revenue requirement and the rate base estimated to be available under the recommended rate methodology.

Some key highlights of the table are explained by line number below:

Expenses

- **Line 2: Annual Operating Expenses** – The Annual Operating Expense is equal to the operating and personnel expenses described in the Cost of Services and is given as a value that accounts for inflation (estimated at 3%) and program growth.
- **Line 3: Annual Capital Expense and Bonded Capital Expense** – The capital expenses are equal to the capital expenses described in the Cost of Services. Metro currently does not plan to issue bonds for capital expenses in the first five years of the user fee.
- **Lines 5: Bond Sale Costs and Debt Service and 6: Bond Debt Service Coverage** – Lines 5 and 6 are equal to zero, since no bonds are currently planned for issuance during the five year period.
- **Line 7: Emergency Reserves** – The user fee will rely upon emergency reserves accumulated by the Metro General Fund or through MWS.
- **Line 8: Total Expenses** – The total expenses are the sum of the operating and capital expenses, with inflation (Line 4) and other expenses shown in Lines 5 through 7.

Other Revenues

The Other Revenues line items account for the inflow of funding from revenue streams other than service fees. Other Revenues are deducted from the Total Expenses to determine how much revenue must be generated from service fees to meet the costs of the program, including reserves.

- **Line 10: Funds Carried Forward** – Revenues that exceed the Total Expenses (Line 8) are carried forward from year to year. These revenues for each year are shown in the previous year's Year-End Revenue Surplus (Deficit) (Line 30). These funds carried forward constitute the Operating Reserves and are set by MWS policy to between two and five percent of the operating expenses (Line 2).
- **Line 11: Bond Funds** – Since Metro currently does not plan to issue bonds for capital expenses in the first five years of the user fee, there will be no bond fund revenues in the planning period.
- **Line 12: Other Fees and Charges** – Other fees and charges include development-related fees and charges such as plans review, inspection and stormwater appeals. The projected revenue from these fees is anticipated to be \$583,000 and to remain steady for the five-year period.



- **Line 13: Interest Income** – Interest income earned on funds carried forward (Line 10). The interest rate on collected funds deposited is calculated separately for operating funds (2 weeks average residence time) and capital funds (four months average residence time). The interest rate has historically been 5.83 percent.
- **Line 15: Total: Other Revenues** – The total for Other Revenues, or non-service fee revenue, is equal to the sum of Lines 10 through 14.
- **Line 16: Revenue Requirement** – The total amount of revenue generated from service fees that is required to meet the program expenses is equal to the total expenses (Line 8) less the revenue from other sources (Line 15).

Revenue Reduction Allowances

Revenue Requirement (Line 16) is not precisely the total amount that must be billed through user fees, because Revenue Reduction Allowances (Lines 18-20) must be considered to determine how much additional revenue must be generated through stormwater user fees to actually meet the Revenue Requirement. For example, the Stormwater Program will not receive full payment of all service fees it bills.

- **Line 18: Bad Debt** – Bad Debt is assumed to be 1.0% of total revenue which is twice the bad debt for MWS collections. This is due to the potential of increased bad debt from stormwater only accounts.
- **Line 20: Credits** – Credits against the service fees for stormwater treatment practices and other activities will also reduce the actual amount of income generated through service fees. Credits are assumed to increase as new properties comply with the credit requirements. Based on experience and analysis it is assumed credits will amount to 2% of revenue in the first year and rise 1% per year to a cap of 5%.
- **Line 21: Total: Revenue Reduction Allowances** – The sum of the revenue reductions (Lines 18 through 20) is the total Revenue Reduction Allowances.
- **Line 22: Adjusted Revenue Requirement** – The total of Revenue Reduction Allowances (Line 21) is added to the Revenue Requirement (Line 16) to calculate an Adjusted Revenue Requirement each year (Line 22). This figure is the *annual revenue objective* for the stormwater user fee.

Calculated Fee Needed

Based on the Adjusted Revenue Requirement (Line 22), the model calculates the monthly charges needed to meet the revenue requirement in Line 24.

- **Line 24: ERU Revenue Requirement** – The ERU Revenue Requirement is equal to the Adjusted Fee Revenue Requirement (Line 22).
- **Line 25: Number of ERUs** – The number of ERUs is now 433,624. The number of ERUs is expected to increase over time as development increases in Metro. The ERU growth rate is assumed to be one-half of one percent per year.



Fee Recommendation

An iterative process of calculating the recommended monthly charge is used to arrive at the Fee Recommendation in the following lines in the model.

- **Line 27: Recommended Monthly Charge Per ERU** – Once the preliminarily estimated rates have been determined, a Recommended Rate Per ERU can be entered in the rate model (Line 28), from which estimated revenue production can be calculated, cash flow projected, and the Year-End Revenue Surplus (Deficit) estimated. Note that the rate includes a 2.75% escalator to keep up with inflation and program growth.
- **Line 28: Estimated Annual ERU Revenue** – Line 29 is equal to the Number of ERUs (Line 25), multiplied by the Recommended Monthly Charge Per ERU (Line 28), and multiplied by 12 months.
- **Line 29: Year-End Revenue Surplus (Deficit)** – The Year-End Revenue Surplus (or Deficit) is the amount by which the Annual ERU Revenue (Line 29) surpasses (or falls short) of the ERU Revenue Requirement (Line 24). In other words it is the difference between Lines 29 and 24.

5.3 Rate

Based on the rate analysis, the monthly rate per ERU, or part thereof, is projected to be four dollars and ninety-eight cents (\$4.98). This rate will be applied as follows:

- SFR Low -Tier residences less than 2,000 square feet of impervious area, including condos, mobile homes, and town homes will each pay for an equivalent 0.5 ERUs or \$2.49 per month beginning July, 2008.
- SFR Middle -Tier residences with between 2,000 and 6,000 square feet of impervious area will each pay an equivalent 1.0 ERUs or \$4.98 per month beginning July, 2008.
- SFR High-Tier residences with 6,000 square feet or greater of impervious area will each pay an equivalent 1.5 ERUs or \$7.47 per month beginning July, 2008.
- NSFR properties will each pay \$4.98 per month per 3,200 square feet of impervious area, or part thereof, beginning July, 2008. – less any applicable credit amount.

Rates will be adjusted by approved credit amounts following the credit application procedure. The rate will increase 2.75% per annum on the anniversary date of the initial stormwater user fee. This level of fee is necessary to support the program plan. Any reduction in the fee will need to be accompanied with hard choices on what program, programs, or specific projects should be eliminated.

A study was conducted of the stormwater fees paid by ratepayers of the largest comparable cities across the United States. A set of thirty-nine communities was chosen. Figure 5-1 shows the results in terms of charge per ERU (without normalizing for ERU size except in cases where the charge was per 1,000 square feet of impervious area).

The range of fees within the set was from \$2.00 to \$16.82 per ERU per month with an average of \$6.72 and a median value of \$6.45. Thus the charge in Metro Nashville-Davidson County is well within the lower-moderate range when compared to peers.

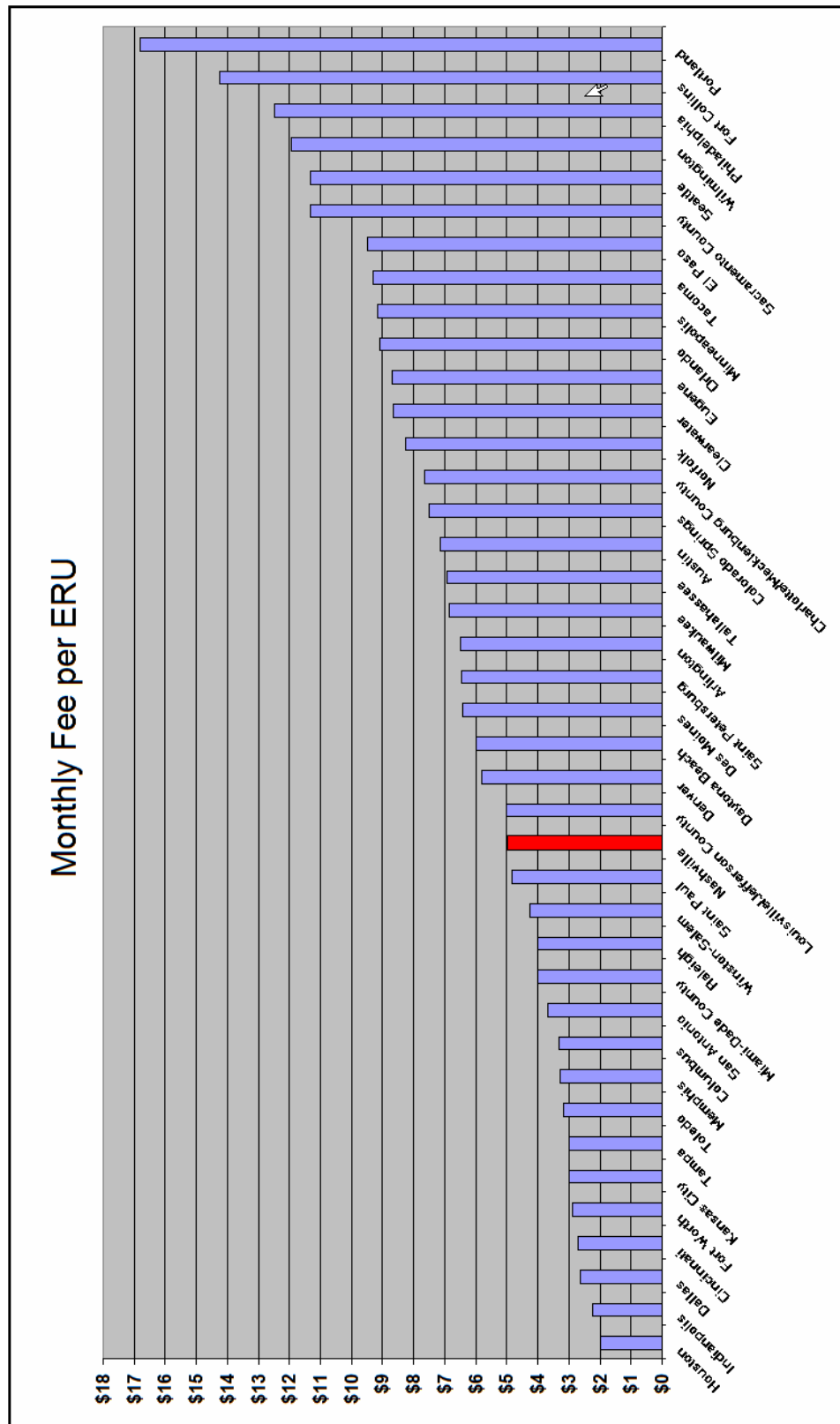


Figure 5-1. National Survey of Large City Stormwater User Fees.

5.3.1 Rate Example

Figures 5-2 and 5-3 show a NSFR property with measured impervious area of 63,890 square feet. This is a one story commercial building with rental space of 20,000 square feet at a rate of \$21/sq ft/yr. The base charge without credits is that number divided by the ERU size (3200) and rounded up to the next whole ERU number. This total is 20 ERUs and the fee would be \$99.60 monthly.

This property has a detention pond in the lower left corner which has been designed to MWS standards and thus the property qualifies for a 40% credit reducing the monthly fee to \$59.76. The stormwater fee, in this case, amounts to 3.6 ¢ per square foot per year.

If the property also had stormwater quality treatment (such as bioretention areas in its green fringe areas) it would qualify for an additional 20% credit making the monthly fee \$39.84.



Figure 5-2. Example Non-Residential Parcel



Figure 5-3. Example Non-Residential Parcel Bird's Eye View



6.0 BILLING ANALYSIS

This Billing Analysis discusses creation of the master account file along with billing and collections.

6.1 The Master Account File

A stormwater user fee will be charged for stormwater services provided by Metro Water Services (MWS) to all properties within the service area that are occupied by impervious area greater than 400 square feet. The service area is all area within Davidson County excluding areas within the satellite cities.

The Master Account File is the tool used to match fees to customers and it is the file from which bills are generated. To create the Stormwater Master Account File, information is extracted from the existing MWS billing system. This system is water account-based, which means the bill is linked to a water meter. However, most accounts have an associated parcel number. The parcel database for Davidson County is used to match existing water customers to a parcel(s) by using parcel numbers, owners, and property addresses. Through this procedure two types of customers are identified, existing customers and new "stormwater only" customers. Existing customers consist of all water customers who will have a stormwater fee addition to their current bill. New "stormwater only" customers will consist of all customers who are not current MWS customers, but will receive only a stormwater bill (e.g. parking lots).

After implementation of the stormwater user fee, the Master Account File will need to be maintained and updated as necessary.

Events that may require a revision of the master account include but are not limited to:

- Credits or adjustments
- New construction or demolition – evident through building permits
- New customers
- Owner/customer changes
- Sub-division of land

The MWS Customer Service Department will assist in the maintenance of the master account file. Procedures for maintenance will be developed in coordination with several MWS departments.

6.2 Billing and Collection

The stormwater user fee charge will be added to the existing monthly water bill provided by MWS to its water customers. All stormwater customers that are not current water customers will receive a "stormwater only" bill which will be mailed quarterly. The water bill for existing customers will have a one line addition noting the stormwater fee. In addition, those customer accounts receiving credits will have a credit message indicating the percent credit applied to the account.



Some properties will require special consideration for billing purposes. Those properties and the probable solution for their bill include:

- A. Multiple water accounts on one property: The bill will go to the owner of the property and he/she can split however they feel appropriate.
- B. Multiple properties for one water customer: The customer will receive a water bill with the stormwater user fee addition for each property he/she owns that has a water account but will receive a stormwater only bill for each property he/she has that does not have an existing water account. If the customer would like to have all bills combined he/she may request so to Metro Water Services customer service department.
- C. Owner of property is different from water customer/tenant on property: The bill will go to the current water customer/tenant. If at any time the building has no tenant water account, then the bill will default to the owner of the property.

The stormwater user fee will be the first utility listed on the water bill. Partial payments will be applied to utilities in the order they are listed on the water bill. Those accounts that are not paid in full will be delinquent on the water utility portion of the bill and therefore water service may be terminated. Metro will pursue collection of "stormwater only" customers through appropriate legal action as necessary.

6.3 Customer Service

Questions will be directed to MWS Customer Service Department. Customer service representatives will receive training and information to aid in answering stormwater user fee bill-related questions. Technical questions regarding the stormwater user fee will be redirected to MWS Stormwater Division staff. A detailed appeals procedure will be established if the stormwater user fee is implemented. Non-single family residence property owners that believe the Equivalent Residential Unit (ERU) component of their stormwater user fee or credit is incorrect and single family residence property owners that believe their property is being billed in the wrong tier level can contact MWS customer service to verify or request further investigation.



7.0 NEXT STEPS

As directed by Ordinance BL2007-1440, this Business Plan has been prepared by Metro Water Services (MWS) to present the extent and level of stormwater services provided by MWS, costs for providing those services, a capital improvement plan, and a rate study, rate structure analysis, fee schedule and five-year plan for the implementation of a dedicated stormwater user fee.

If the Metro Council moves to establish a stormwater user fee as a source of funding for the stormwater program, the activities described in this section are critical to its successful implementation.

7.1 Rate Ordinance

In addition to this Business Plan, Ordinance BL2007-1440 directed MWS to prepare for Council consideration a Rate Ordinance for a stormwater user fee. The Rate Ordinance will be prepared and delivered under separate cover.

Passage of a Rate Ordinance is the first, and most critical, step necessary to implement a user fee for stormwater services.

7.2 Public Education and Outreach

In the fall of 2007, community meetings were held throughout the County to educate the public on the status of the stormwater program and to solicit thoughts and concerns for the direction of the stormwater program. Public education has continued into the beginning of 2008 through presentations at local organization meetings. Before, during, and after passage of a Rate Ordinance, MWS will implement an additional campaign of public education and community outreach that will focus on educating and communicating with customers on the need for the user fee, the benefits to the community, and the anticipated costs. A plan has been developed that identifies key messages, audiences, tools for communication and the following series of actions to be implemented prior to implementation of the user fee. Table 7-1 presents a graphical timeline for these public education and outreach efforts.

***General
public
awareness
and
understanding
is essential
to the success
of a new user
fee.***

- Provide a “for more information” link on MWS’s website to answer general questions. Information contained here will provide specific examples of resolved stormwater problems, an FAQ, and will be updated periodically. [February - July]
- Present to and engage the voices of third-parties – environmental and neighborhood groups, etc. [February - April]



- Present to and discuss with stakeholders and property owners expected to receive the largest bills – large land owners, government agencies, etc. [February - April]
- Hold a special Public Works Committee meeting to present a report on the community education and outreach. This meeting should be covered by the media and results should be distributed to Council by legislative sponsors. [March]
- Conduct editorial board meetings with The City Paper and The Tennessean. [May]
- Provide a wide distribution of information either through the local cable channel and/or through an informative brochure in water bills that explains the upcoming stormwater user fee.

Table 7-1. Schedule for Public Education and Community Outreach.

Action	F	M	A	M	J	J
Present to Council						
Council readings of Ordinance						
Meetings with stakeholders, community and environmental groups						
Public Works Committee and Budget and Finance Committee meetings						
Provide information on MWS website						
Articles in The Tennessean & The City Paper						
Cable channel production or brochure in water bills						

Public education and community outreach efforts are expected to continue beyond the first billing of the user fee bill to ensure smooth and successful implementation. Regular updates will be given to Council Members during this period.

7.3 Database Refinement and Billing System Development

Based on the extensive database development necessary to produce this Business Plan, specifically the rate structure analysis, it is estimated that the remaining database and billing implementation steps can be completed by June 2008 so that user fee billing can commence on July 1, 2008.

7.3.1 Master Account File

As stated in Section 6.0 (Billing Analysis), a Master Account File will be created to establish the stormwater customer base and associated user fees for each property in the stormwater service area. The Master Account File will identify parcels, the appropriate user fee per parcel based on the rate structure, the customer associated with the parcel, and any user fee credits approved for the parcel.



7.3.2 Trial Billing

Once the Master Account File is established and integrated into the MWS billing system, trial runs will be made to test the billing processes and procedures. MWS will be prepared to conduct trial billing by May.

7.4 MWS Preparation

The implementation of a user fee will require new tools, staff, and training simply for support of the user fee but also for support of the program enhancements made possible by dedicated funding.

7.4.1 Credit Manual

A credit manual will be developed that defines and explains the available credits, credit structures, the conditions for receiving those credits. It will also include credit application forms, right-of-entry forms for inspections, and inspection checklists for MWS to review credits.

7.4.2 Customer Service

Prior to issuance of the first bill customer service representatives at MWS Customer Service Center will receive training. Training and information provided will include billing policies and procedures, stormwater definitions, frequently asked questions, policies/resolutions, appeals process, rates and rate structures, general digitizing methods and criteria, tracking and billing database use, and billing rules and procedures. Issues that customer service representatives are not technically knowledgeable of will be directed to the Stormwater Division Development Review Section.

7.4.3 Internal Staff

Council members, MWS staff, and other Metro departments will receive information to assist in community and customer relations issues that may arise throughout implementation.

Additionally, one staff member in the Development Review Section of the Stormwater Division will be temporarily reassigned to resolve technical questions directed from the customer service department. This person will be trained to resolve impervious area issues, review credit applications, and to answer questions about the establishment of the user fee.

It is important for the public to “see their money at work” as soon as the first bill is issued. MWS is currently accelerating bid documents to begin projects immediately in FY09. The goal is to resolve as many lingering service requests as quickly as possible following implementation of the stormwater user fee.



7.5 Annual Reporting

The Director of MWS will submit a written annual report to the Metro Council containing, at a minimum, the following:

- The status of the storm water management program in Metro Nashville.
- The fee structure imposed to fund the implementation of the storm water program.
- The adequacy of funds to implement the program.
- Long-range plans to implement the user fee.
- An updated Capital Improvement Plan (Section 3.0).
- The status of projects identified in the Capital Improvement Plan.

Additionally, the Director of MWS will personally appear annually before a joint meeting of the council public works and budget and finance committees to report on the status of the stormwater management program.